PROFESSIONAL LEARNING COMMUNITIES

AS A LEADERSHIP-INITIATED REFORM STRATEGY

FOR MATH AND SCIENCE TEACHING

IN URBAN HIGH SCHOOLS

A Dissertation

by

KRISTIN SHAWN HUGGINS

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

August 2010

Major Subject: Educational Administration

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Approved by:

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ABSTRACT

Professional Learning Communities as a Leadership-Initiated Reform Strategy for Math

and Science Teaching in Urban High Schools. (August 2010)

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Chair of Advisory Committee: Dr. James Joseph Scheurich

Due to the urgency of not losing more urban high school students to academic

failure and dropping out, the most promising reform efforts must be investigated. One of

the most promising ways of creating successful high school reform that has been

advocated is through restructuring schools into community-like organizations, often

called professional learning communities. Yet, limited empirical research has been

conducted concerning professional learning communities, especially in urban high

schools. Thus, this research sought to understand how two urban high schools, one

comprehensive high school in a large urban center and one small career academy high

school in a medium-sized urban center, implemented professional learning communities

as a leadership-initiated reform strategy for math and science teaching. Year-long

interactions with each high school including in-depth observations and eighteen

interviews, nine personnel from each site, revealed that certain organizational structures

(e.g. social and human resources, structural conditions) must be in place for professional

learning communities to have the potential to be a successful reform effort. Specifically,

the way in which leadership supports professional learning communities through

structure, pressure, and support was important. Both studies show that school context

and leadership significantly affect the quality of professional learning communities and

their ability to reform their instructional practices in order to increase student

achievement.

DEDICATION

To my best friend, Héctor Gerardo Morales, whose continuous support and encouragement have shown me the strength of human care and consideration. Without him, my Ph.D. journey would have been much more difficult.

To my mother, Mary Ann Huggins, whose constant encouragement and interest in the Ph.D. process have shown me the depth, breadth, and duration of a mother's love. Without her, I never would have known the significance of sacrifice.

To the memory of my grandfather, Adam A. Shaw, whose steadfast determination to provide for his children and grandchildren showed me the immense capacity of the human spirit. Without him, I never would have known the value of hard work.

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Finally, I want to thank my friends and family who were understanding when I moved to Texas to pursue the dream of obtaining my Ph.D. and encouraged me along the way to continue toward that dream. I am truly blessed by all of you.

NOMENCLATURE

AYP	Annual Yearly Progress
IPC	Integrated Physics and Chemistry
ISD	Independent School District
NCLB	No Child Left Behind
PhD	Doctor of Philosophy
PLC	Professional Learning Community
US	United States

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CHAPTER I

INTRODUCTION

Apparent in the literature is the fact that school reform is complicated (e.g., Payne, 2008). However, when the school reform is situated in a high school and that high school is located in an urban area, the matter becomes even more complex (e.g., Fine, 1991; Lipman, 2004), especially if the school reform concerns math (Gamoran, Porter, Smithson, & White, 1997) and science (Tobin, Seiler, & Walls, 1999) teaching and learning. However, schools have a responsibility; regardless of the difficulty of schooling at a certain level, in a certain location, and in certain disciplines; to ensure that students have opportunities to learn. Yet, that is not what is occurring in math and science teaching and learning in urban high schools. Across the nation, a major need exists for increased rigor in math and science secondary teaching in order to ensure college readiness in post-secondary disciplines that will lead to careers that contribute to the success of the U.S. in the global economy (Augustine, 2005), but significant amounts of students in urban schools do not even complete high school (Swanson, 2009), much less are college-ready. This situation poses a problem for the future of the nation, but more importantly, this situation often destroys the current potential and future possibilities for so many urban youth that happen to live, the vast majority by no choice of their own, in urban centers.

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This dissertation follows the style of *Educational Administration Quarterly*.

Thus, this dissertation considers, in an in-depth way through case studies, how a research-supported reform effort for increasing student achievement, professional learning communities (Vescio, Ross, & Adams, 2008), affects math and science teaching and learning within the context of urban high schools. This research is done in the hope of adding to what is known about current reform efforts in urban high schools in order to get closer to finding ways to increase the capacity of school leaders and teachers in urban high schools who will in turn provide greater opportunities for urban high school students to learn and succeed.

Personal Rationale

Following eight years of teaching in Oklahoma, I moved to Texas to obtain state residency in order to enroll as a Ph.D. student at Texas A&M University because I was looking for ways to increase my knowledge concerning my teaching practice. After participating in multiple school and district professional development workshops, becoming a Writing Consultant through the Oklahoma branch of the National Writing Project, attending and presenting at the National Council of Teachers of English convention repeatedly, completing over 150 hours of College Board Advanced Placement training, acquiring certification as a teacher mentor through the Oklahoma Education Association, being a fellow in the Oklahoma Educator's Leadership Academy, becoming a National Board Certified Teacher, and obtaining a M.Ed. in Supervision, Curriculum, and Instruction, as a mid-career teacher, I felt I had exhausted the school, district, and state professional development opportunities available to me in Oklahoma. Through conversations with other educators who had taught in Texas, I knew

that the educational context was very different across the Red River. Thus, I thought that by spending two years teaching in a high school in Texas in order to obtain residency and eventually attending doctoral school, I would be able to expand my knowledge base about teaching and learning to improve my practice.

The very first high school where I received a teaching position in Texas was in the third largest district in the state. The school had almost 2,400 students in grades nine through eleven. (The school was only in its second year of existence and had started with grades nine and ten, adding a grade each year until grades nine through twelve were housed within the school.) The high school in which I had taught in Oklahoma was in the largest classification of high schools in the state and only had about 1,500 students in grades ten through twelve. Aside from a sheer school size differential from my previous experience, the student demographics were different as well. In Oklahoma, the high school where I taught was over sixty percent White. However, in Texas in the school where I taught, only a third, 33.5%, of the students were White. So, the school size and student demographics were different, but the teaching was, too. English teachers in the district in which I taught when I first moved to Texas had two periods without students. One of those periods was intended to be used for grading essays while the other period was intended to be used for team planning. During team planning time, all of the English III teachers, six of us, met together to align our teaching with the district curriculum and each other. In Oklahoma, I had one period without students to plan and grade and individually made all of the decisions concerning my teaching, including the curriculum. Subsequently, I was correct in thinking that moving to Texas would expand my

knowledge base about my teaching practice because the situation was so very different than what I had experienced previously. In fact, I struggled with those differences.

However, what emerged from that struggle led me to question how successful teaching occurs within groups of teachers, or professional learning communities, in large high schools filled with a wide range of student demographics. But, what I soon realized was that successful teaching only occurs when students are learning (Darling-Hammond, 1998). This measure of student learning in Texas is and has been for quite some time based upon state-mandated, standards-based, accountability assessments. In my previous teaching position in Oklahoma, this measure had been simply based upon whether students completed the work I assigned and passed my class, a requirement for graduation. However, when I was transitioning to Texas in 2003, this kind of accountability was emerging nation-wide as part of NCLB (No Child Left Behind Act, 2002). What NCLB created was a national cognizance of the students who had been "left behind" or failed by public education. Unfortunately, many of those students reside in urban centers. Thus, I specifically began to realize the larger implications of failure in urban schools (Skrla, McKenzie, & Scheurich, 2009; Swanson, 2009). That failure was actually shocking to me. And, even though I now know what I did not know when I first realized the failure of urban schools for large numbers of students, specifically African American and Latino students from low-income homes, I still mourn that reality on a regular basis. And because so many urban schools fail to educate such large percentages of students of color, continuous inequities exist in the United States from missed opportunity after missed opportunity. Thus, I am vigilant in my endeavor to find ways

through research to ensure that every child, regardless of housing location, has a chance to accomplish the dreams they desire. Currently, I believe the way urban schools will become successful is through implementing, at a high level, reform efforts that research has shown are successful.

Broad Research Topic Being Investigated

Since *A Nation at Risk: The Imperative for Educational Reform* (Gardner, 1983) was published, an outcry for fundamental change in American schooling has existed. However, with the dynamics of the technology age, recently the outcry has increased and transformed as the outsourcing of knowledge and skill to other countries has called attention to the need for public education to create appropriately educated graduates not only to compete in the marketplace, but also to sustain the national economy (Augustine, 2005; Friedman, 2005). In fact, under the current federal governmental administration, an opportunity exists for states to receive funding if they can "advance reforms around four specific areas" (U. S. Department of Education, 2010) in schools and districts in their states. One of the four specific areas of reform focus by the federal government is concerned with "turning around [the United States'] lowest-achieving schools" (U. S. Department of Education, 2010). Unfortunately, though, many of these schools are high schools in districts in urban areas of states, serve African-American and Latino/a students from low-income homes, and have continuously failed to educate the students they serve. However, some urban high schools and districts are successfully implementing reforms that lead to increased student achievement (Louis & Marks, 1998; Skrla, Scheurich, & Johnson, 2001; Snipes, Doolittle, Herlihy, 2002). One such reform

effort that has been shown to be successful in increasing student achievement is professional learning communities (Louis & Marks, 1998).

Professional learning communities consist of a collective group of teachers and school leaders who meet together to continuously seek and share learning about ways to increase student achievement (Hord, 1997). These professional learning communities tap the context-specific and collaborative ways in which teachers learn. Specifically, "teachers learn when they generate local knowledge of practice by working within the contexts of inquiry communities to theorize and construct their work" (Cochran-Smith & Lytle, 1999, p. 250). Beyond theorizing and constructing teachers' work, professional learning communities allow teachers to critically examine the student learning that is occurring from that work. Through reflecting in dialogue with colleagues about successes and challenges of teaching in a collective way, teachers are able to collaborate with others on possible ways to increase instructional effectiveness (Louis, Kruse, & Associates, 1995). From that collective learning, teachers can change their classroom practice for increased student learning (Darling-Hammond, 1998). Therefore, professional learning communities may have the potential to reform teaching and learning in order to meet the academic needs of children of color from low-income homes who attend urban high schools.

Over-arching Goal of the Study

Since professional learning communities have the potential to change teacher practice for increased student learning, several efforts to reform urban high schools through professional learning communities are occurring. However, a limited

understanding exists concerning professional learning communities and the ways they affect student achievement (e.g., Vescio et al., 2008), especially in urban high schools concerned with improving math and science teaching (Louis & Marks, 1998; Supovitz, 2002). Therefore, a need exists for research to be conducted concerning the implementation and effectiveness of these professional learning communities within urban contexts that serve diverse students.

To address this need, this research was focused on an in-depth examination of efforts to use professional learning communities as a reform strategy within one large, low-performing comprehensive high school in a major urban area and one small, average-performing career academy high school in a medium-sized urban area. In these selected urban high schools, this research was specifically concerned with the ways various school personnel viewed their professional learning communities, perceived their role or roles in their professional learning communities, perceived the concrete linkages between their professional learning communities and their classroom teaching practice, and understood the relationship between their professional learning communities and their classroom practice.

This focus was addressed through year-long interactions with school and district personnel at Evergreen High School in the 2006-2007 academic year and Riverside Academy in the 2008-2009 academic year. At the research sites, participants were chosen based upon their involvement in professional learning communities. While at Evergreen High School both the math and science professional learning community participants were included in the study, only the math professional learning community

participants at Riverside Academy were included in the study. However, both research sites involved nine participants for a total of eighteen participants combined. Initial data collection began at off-site professional development provided by a university center where the researcher was a graduate assistant. In addition to observations at off-site professional development, data collection consisted of written documents, multiple school and classroom observations, and semi-structured interviews (Lincoln & Guba, 1985). Specifically, the researcher was concerned with observing professional learning community meetings and then the effects of those meetings on the pedagogical practices of teachers in their classrooms. Data was analyzed using a constant-comparative method (Glaser & Strauss, 1967) whereby data was collected, transcribed, and emerging themes relevant to the two studies were selected, described, and analyzed.

Collective Meaning

Unlike much of the empirical research concerning professional learning communities involving elementary contexts (e.g., Hollins, McIntyre, DeBose, Hollins, & Towner, 2004; Strahan, 2003), these two case studies provide an understanding of how math and science professional learning communities are implemented in urban high school contexts. Evergreen High School provides an example of professional learning communities being implemented in a large, traditional urban high school context for two purposes, to mediate ninth grade retention and dropout as well as to increase student achievement. Differently, Riverside Academy provides an example of professional learning communities being implemented in a medium-sized, urban high school academy context with the clear purpose of increasing student achievement. Both schools

struggled with teacher pedagogical and content knowledge, often typical of urban

contexts (Lankford, Loeb, & Wyckoff, 2002), and implemented professional learning

communities with the intention of increasing both the pedagogical and content

knowledge of the math and science teachers in their schools. Additionally, both schools

had district and school leadership involved in the planning and implementation of their

professional learning communities.

However, the way in which the district and school leadership was involved

differed. In the Evergreen High School case, the district leadership was involved through

providing a district Executive Director of Professional Learning Communities to oversee

ten high schools, of which Evergreen High School was one, in the implementation of

professional learning communities. In the Riverside Academy case, the professional

learning communities were also implemented at the district level in the three district high

schools, but the leadership for those professional learning communities was site-based at

each individual school. Subsequently, school leadership involvement at the two sites was

dissimilar. At Evergreen High School, a Professional Learning Communities'

Coordinator was the school leader most closely involved with the professional learning

communities at the school. Since the professional learning communities dealt with

instruction, the Dean of Instruction was involved with the professional learning

communities at the school as well. Yet, the Professional Learning Communities

Coordinator and the Dean of Instruction did not coordinate or collaborate on their

leadership processes for the professional learning communities. However, at Riverside

Academy, three school leaders—the head principal, the associate principal, and the

instructional specialist—were all involved in the math professional learning community collectively.

In addition to the differences in school leadership involvement, dissimilarities existed concerning the teacher composition of the professional learning communities at the two schools studied. At Evergreen High School, only the freshmen math teachers who taught algebra I and the freshmen science teachers who taught integrated physics and chemistry (IPC) were part of the professional learning communities studied. Conversely, at Riverside Academy, the teachers studied composed the entire math department at the school with all of the teachers teaching different math subjects— algebra I, algebra I inclusion, geometry, algebra II, pre-calculus, and state-mandated assessment math. Also, dissimilar amounts of time were structured into the school schedules for the professional learning communities to meet. At Evergreen High School, the algebra I and IPC professional learning communities met twice a week within the school day, but at Riverside Academy, the math professional learning community met every day within the school day.

Together, these two case studies provide an understanding of the ways in which high school math and science teachers in urban contexts engage in professional learning communities and how engaging in those professional learning communities affects student achievement. While the two cases provide very different results, they both show that leadership influences whether teachers engage in the research-based characteristics of professional learning communities—shared norms and values, reflective dialogue,

deprivatization of practice, focus on student learning, and collaboration (Kruse, Louis, & Bryk, 1995).

Combined Contribution

Collectively, this research adds to the current empirical literature on professional learning communities in urban high school contexts (e.g., Louis, Kruse, & Associates, 1995; McLaughlin & Talbert, 2001). However, Riverside Academy's case particularly adds to the empirical literature on professional learning communities that lead to increased urban high school student achievement (Louis & Marks, 1998; Supovitz, 2002). Indeed, Riverside Academy's success in increasing math achievement through professional learning communities provides a rare example (McLaughlin & Talbert, 2006), especially since math student achievement dramatically increased in one academic year, a feat absent from the empirical literature on professional learning communities and much-needed in an era of "turnaround" schooling. Additionally, Riverside Academy's case points to the significance of leadership engaging in the instructional processes of teachers through professional learning communities as well as the ways in which teachers change their classroom practice due to their participation in professional learning communities.

Conversely, Evergreen High School provides an example of a school that failed to implement professional learning communities effectively. In fact, the conditions at Evergreen High School were so deleterious that even teachers who were attempting to use professional learning communities to increase their capacity were being undermined in their endeavors by the school environment. Also, the Evergreen High School case

suggests the need for district leadership to address organizational problems at schools

before implementing a reform in a situation where it may be destined to fail otherwise.

While dilemmas concerning professional learning communities seem to be of increasing

importance (Stoll & Louis, 2007), especially concerning high school contexts

(McLaughlin & Talbert, 2007), these case studies combined may provide insight into

why some professional learning communities increased student achievement and why

some do not.

CHAPTER II

STRUGGLING TO CREATE PROFESSIONAL LEARNING COMMUNITIES IN

A DIVERSE, LOW-PERFORMING URBAN HIGH SCHOOL: A CASE STUDY

Introduction

In large urban centers across the United States, schools face many difficult and serious challenges. The most significant challenge is the urban context itself, which in the fifty largest U.S. cities is home to one in every six Americans (U. S. Census Bureau, 2009). Within these large urban cities are high levels of poverty (Devine & Wright, 1993) that affect many facets of individual's lives (Farkas, 1996). Additionally, the more that urban poverty is congested in a neighborhood, the greater the impact it has on the children who live in that neighborhood (Brooks-Gunn, Duncan, Aber, 1997). Some of that impact involves, for example, high levels of health risks (e.g., Ewart & Suchday, 2002), crime (e.g., Sampson & Wilson, 2005), and housing mobility (Ludwig, Duncan, & Hirschfield, 2001), among other difficulties. In fact, a child who grows up in an urban environment is more likely to suffer extraordinary rates of excess mortality (Geronimus, 2000); know individuals who have membership in gangs, be threatened by gangs, and have heightened concern for personal safety (Evans, Fitzgerald, Weigel, & Chvilicek, 1999); and change enrollment across various schools (Rumberger & Larson, 1998) than a child who grows up in a rural or suburban context.

While certain outside contextual conditions affect urban high schools, challenges exist as well inside urban high schools. In fact, in high schools in large urban centers

"the issues have remained stubbornly constant: inadequate funding and resources, unequal educational opportunities, high dropout rates and low academic achievement, student alienation, racial segregation, and race and class inequality" (Lipman, 2004, p. 5). With this combination of external and internal contexts, the resulting challenging issues have a substantial impact on urban high school students. Consequently, urban high schools have struggled to successfully educate and graduate large numbers of students, specifically African American and Latino students from low-income homes. Indeed, in over thirty of the fifty most-populated urban cities, one of every two students drops out of school (Swanson, 2009).

However, with both an increasing globalized economy that requires highly-educated and skilled workers (Augustine, 2005) and demanding federal standards-based accountability that insists on the success of *all* students (No Child Left Behind Act, 2002), urban high school failure is no longer acceptable, regardless of the conditions inside and outside of urban high schools. In fact, it could be argued that significant student academic achievement changes must occur in urban high schools if there is to be significant success with African American and Latina/o students, given the percentage of such students who attend urban high schools (Swanson, 2009). The necessary school improvement, though, will only emerge if organizational behavior in urban high schools is dramatically altered to ensure student academic achievement. Therefore, the staff in these schools will be required to re-examine the basic premises that guide their organizational behaviors and continuously increase their knowledge base (Argyris & Schön, 1978) on how to improve their teaching and thus student learning.

The way many organizations engage in this re-examination is through organizational learning where the impediments to improvement are intentionally and continually explored and remedies are initiated (Argyris, 1977). This idea of organizational learning moved into the educational sphere two decades ago (Senge, 1990; Senge et al., 2000) when schools were looking for ways to successfully create educational reform. Currently, though, the main way this organizational learning is being used in school reform efforts is through *learning communities* or *professional learning communities* (Stoll & Louis, 2007; Hord & Sommers, 2008). Indeed, research (Louis & Marks, 1998) has shown that school-based professional learning communities can have a significant impact on the use of authentic pedagogy when teachers work interdependently in professional learning communities. Additionally, if professional learning communities develop high levels of trust, they are likely to improve math and reading achievement (Bryk & Schneider, 2002). Furthermore, when schools act as professional learning communities, Hispanic students achieve at higher levels (Reyes, Scribner, & Scribner, 1999), and students are absent less and less likely to drop out (Hord, 1997). Professional learning communities are, thus, a research-supported strategy that may help urban schools successfully implement reform.

Organizational Learning and Professional Learning Communities

Organizational Learning

Organizational learning provides a theoretical framing for the re-examination needed in urban schools toward reform. While more conceptual complexities have been offered (Brown & Duguid, 1991; Levitt & March, 1988; Senge, 1990), put simply,

organizational learning is the ability of organizations to detect and correct error (Argyris, 1977). Specifically, organizational learning occurs through organizational experience, memory, and response to changing environments (Levitt & March, 1988). And while the ability of organizations to learn is intimately tied to whether those organizations are successful as a whole, organizations are groups of individual people. Therefore, significant to organizational learning is the way in which individuals learn in their day-to-day work (Brown & Duguid, 1991). Notably, individuals learn through collaboration with others (Orr, 1990). This consideration of collaboration for the good of the whole organization has become more and more important in the last two decades in the educational realm. In fact, from the ideas espoused by an organizational theorist in business (Senge, 1990), *learning communities* or *professional learning communities*, where collective groups of teachers and leaders seek to use their individual capacity collectively to engage in increasing student learning, have become a major aspect of current school reform agendas.

Professional Learning Communities

One of the main reasons professional learning communities have become part of reform agendas is due to the increasing knowledge and skills, i.e., capacity, needed by teachers and school leaders to ensure all students are learning at high levels. Indeed, what is now required of teachers and school leaders often seems almost impossible. However, through professional learning communities, teachers and school leaders are able to engage in collaboration about the difficult work of improving instruction (Louis, Kruse, & Associates, 1995). Through this work, they critically question their practices in

ongoing reflective ways (Mitchell & Sackney, 2000; Toole & Louis, 2002). When this kind of ongoing critique comes from supportive peers and school leaders, teachers have been found to increase their sense of efficacy (Tschannen-Moran, Hoy, & Hoy 1998) because the feedback and encouragement is continuously available when there are alterations in school leaders' and teachers' perceived abilities to make change to their practice (Guskey, 1989).

Yet, it is critically important to understand that many organizational factors affect whether professional learning communities are successful (Louis & Marks, 1998). Before professional learning communities can even effectively engage in change concerning increasing instructional effectiveness, certain organizational structural factors need to be in place to facilitate professional learning communities (Kruse et al., 1995). While it is certainly possible that professional learning communities can come together organically, in typical school settings, extra time to collectively discuss instruction with colleagues is minimal at best. Therefore, professional learning communities are most effective when a consistent, structured time period is scheduled to meet and talk with colleagues (Kruse et al., 1995) during the school day. In addition to having scheduled time, discussions about instruction are more likely to occur if teachers' classrooms are in close physical proximity to one another (Kruse et al., 1995). By being in close proximity to one another, teachers are able to monitor and adjust their classroom practice in collaboration with one or more of their peers in the midst of the school day.

Other structural factors that facilitate professional learning communities are interdependent teaching roles, communication structures, teacher empowerment, and

school autonomy (Kruse et al., 1995).Through interdependent teaching roles, teachers

are situated to rely on collaboration with their colleagues to collectively improve their

instruction. If solving teaching struggles is a collective difficulty instead of an

individual's own problem, solutions are more likely to be collectively found. However,

this kind of collective problem-solving concerning improving classroom instruction can

only occur when consistent and dependable communication processes are in place.

When schools are autonomous, school leaders are able to create the interdependent

teaching roles and communication processes that are necessary to empower teachers to

engage in critical conversations with their colleagues about their difficulties with

increasing student learning. Without the power to change the roles and structures of the

school, principals have limited authority over the organizational factors that can

facilitate professional learning communities.

While certain organizational structural factors assist professional learning

communities in becoming effective, even with organizational structural factors in place,

professional learning communities can falter (McLaughlin & Talbert, 2001). Therefore,

the organizational social and human resource factors that influence professional learning

communities must be considered as well, including openness to improvement and trust

and respect (Kruse et al., 1995). Most significantly, if change is to occur through

professional learning communities, especially changes leading to increased student

achievement (Louis & Marks, 1998), teachers and school leaders must have an openness

to improvement (Kruse et al., 1995). Part of this openness to improvement is based upon

an intentional effort to continuously learn how to improve, which requires an inquiry as

stance (Cochran-Smith & Lytle, 1999) disposition to learning. An inquiry as stance

disposition to learning exists when an individual chooses to constantly be inquiring into

how to learn more in order to improve difficulties. Thus, those who adopt this approach

are persistently open to improvement. In fact, they are often actively seeking to improve.

However, being open to improvement in a collective manner in professional learning

communities necessitates a certain level of respect and trust among the individuals

involved in the community. Indeed, some research (Bryk, Camburn, & Louis, 1999) has

suggested that trust is the key facilitating factor in professional learning communities.

Additional organizational social and human resource factors that must be

considered when putting professional learning communities in place are access to

expertise, supportive leadership, and socialization (Kruse et al., 1995). While

professional learning communities can facilitate professional development (Grossman,

Wineburg, & Woolworth, 2001), there still needs to exist a certain level of expertise

among the members. Otherwise, opportunities must be sought outside of the community

or brought into the community in order to have the expertise needed to improve

instruction for increased student learning. However, few organizational factors, like

expertise, will be available to the professional learning community without a supportive

principal. In professional learning communities, supportive principals have certain roles,

including knowing what is happening in the school, maintaining the focus of the

professional learning communities, creating structures that facilitate professional

learning communities, and modeling effective processes and practices for teaching and

learning as well as collaborating with others (Mitchell & Sackney, 2006). In addition to

having a supportive principal, socialization of new members to the professional learning

community needs to occur in order for the critical characteristics of professional learning

communities (Kruse et al., 1995) to be sustained.

Indeed, critical characteristics are needed within the professional learning

communities to ensure their effectiveness. Through their work, Kruse et al. (1995)

suggest that five critical characteristics exist in effective school-based professional

communities. These include shared norms and values, reflective dialogue,

deprivatization of practice, collective focus on student learning, and collaboration. Both

during the implementation of a professional learning community and as the professional

learning community evolves, those involved in the community need to collectively

decide what the priorities of the community will be and how the community members

will conduct themselves to ensure those priorities remain the focus. Once the shared

norms and values have been collectively decided, the professional learning community

focuses on teachers deprivatizing their practice through reflective dialogue that

addresses student learning (Kruse et al., 1995). Specifically, deprivatization of practice

requires teachers to "practice their craft openly" with others by "mutual[ly]

solving…problems through discussion and classroom observation" (Kruse et al., 1995,

p. 31). However, this deprivatization of practice is not to simply place emphasis on the

pedagogy of the teacher, but to focus on how the teacher's practice affects student

learning. Through deprivatizing practice by focusing on student learning through

reflective dialogue within a professional learning community, colleagues are available to

collaborate with one another concerning the challenges of instruction.

Using the empirical literature that has informed the use of professional learning communities as a reform effort for changing teacher practice, then, this case study specifically considered the implementation of professional learning communities as a reform effort for math and science teaching within an urban high school context.

Methodology

This study was a qualitative investigation (Denzin & Lincoln, 2003), specifically a case study (Merriam, 1998; Yin 1989). According to Merriam (1998), "case study design is employed to gain an in-depth understanding of the situation and meaning for those involved" (p. 19). For this case, the focus was making meaning from the freshmen math and science professional learning communities[1] at Evergreen High School[2]. Specifically, the research was concerned with understanding the perceptions of the district and school leaders as well as teachers involved in the freshmen math and science professional learning communities at Evergreen High School about these communities, their roles within those professional learning communities, the connection between those professional learning communities and teachers' classroom practices, and the ways in which they understood the connection between those professional learning communities and teachers' classroom practice in the third year of implementation of a three-year professional learning communities project.

Participants

Participants were chosen because their school was directly part of a university professional development project to assist four high schools in Forest ISD with improving math and science teaching. One of those schools, Evergreen High School,

was also part of the ten-high school professional learning communities' project. Thus, the participants were purposively selected (Patton, 1990) because some of them were involved in the initial year of the university professional development project as well as had been part of the three-year district professional learning communities project. Specifically, nine participants, three district and school leaders—the Forest ISD Executive Director of Professional Learning Communities, the Evergreen High School Dean of Instruction, and the Evergreen High School Professional Learning Communities Coordinator—and six teachers—three algebra I and three integrated physics and chemistry (IPC) teachers—were part of the study. In this context, the researcher was working with the university that provided professional development through the professional development project.

Data Collection

Observations at off-site professional development, multiple school and classroom observations, written documents, and semi-structured interviews (Lincoln & Guba, 1985) were included as part of the data for this study due to a year-long interaction during the 2006-2007 academic year with personnel from both Forest ISD and Evergreen High School. The initial data collection occurred at off-site professional development through engagement with Forest ISD personnel as well as specifically Evergreen High School personnel, including both school leaders and math and science teachers. These professional development opportunities happened for ten days throughout the year with intermittent school site visits to build relationships with school personnel as well as to participate in "Learning Walks" (Fink & Resnick, 2001)

facilitated by the district. Multiple weekly site visits occurred during the last two months of the academic year, which consisted of over twenty-five hour-long classroom observations. During the two-month period, semi-structured interviews occurred with the nine participants. All interviews lasted approximately an hour to an hour and a half. Each person was interviewed using the same questions with various clarifying questions asked in order to make sense of the multiple perspectives involved. All nine semi-structured interviews were digitally recorded and then transcribed.

Data Analysis

The data from this study was analyzed through using a constant comparative method (Glaser & Strauss, 1967), whereby meaning moved between concrete and abstract concepts (Merriam, 2009). During the data collection process, initial interpretations were made. However, after data collection, the data were analyzed line-by-line for meaning, coding (Merriam, 1998) each line. Then, codes were compared to establish categories. Once initial broad categories were outlined, various parts of the data were analyzed again for subcategories within the categories. Once possible subcategories were determined, themes were named.

In order to provide trustworthiness (Lincoln & Guba, 1985) to the study to present results that are consistent with the data collected (Merriam, 1998), prolonged engagement, an audit trail, and peer debriefing occurred. Prolonged engagement occurred through a year-long interaction and weekly in-depth observations during a two-month period. From that time, several artifacts were collected and created that produced an audit trail. All of the audit trail material was peer reviewed by individuals who were

involved in the university center that provided professional development through the professional development project as well as individuals who were not a part of the university center project.

Context

Sitting in a grove on the outskirts of a large metropolitan city in the midst of a neighborhood is a three-story building that is Evergreen High School. The school has been in existence for over forty-five years and was named at its inception after a prominent member of the urban city in which it is located. Upon entering the school, pictures and plagues, centrally hung, highlight the historical significance of Evergreen High School within its community. Over several decades, the demographics of the school have changed significantly from predominantly serving White students to predominantly serving African American students to currently predominantly serving Latino/a students. In the 2006-2007 academic year, Evergreen High School's student population was a little over 1,500 students in grades nine through twelve, with 59.6% Latina/o, 37.7% African American, 2.6% White, and 0.1% or one student Asian/Pacific Islander. Additionally, 75.2% were considered "economically disadvantaged" by state designation. Of the 1,500 students, close to seven hundred students, 45%, were classified as freshmen; almost three hundred and fifty, 23%, were classified as sophomores; approximately three hundred, 19%, were classified as juniors; and a little over two hundred, 13%, were classified as seniors. That nearly half of the student population at Evergreen High School was classified as freshmen was due to reclassification of

students who failed their freshmen year. Additionally, lower numbers in the upper

classifications were a result of both reclassification as well as students dropping out.

In the spring of 2004, Evergreen High School's principal at the time chose for the

school to be one of ten high schools in Forest ISD to be part of a three-year professional

learning communities' project that would implement a Freshmen Center to help with

freshmen retention and subsequent dropout rates, a growing concern in the district and at

the school. Through creating a Freshmen Center based upon a professional learning

communities' project, the freshmen teachers' schedules were arranged so that all of the

core subjects—world geography, algebra I, integrated physics and chemistry (IPC), and

English I—had professional learning communities two days a week in interdisciplinary

professional learning communities, including one teacher from each core subject, as well

as two days a week in a subject-specific professional learning communities, consisting of

three teachers teaching the same subject. The thinking behind the Freshmen Center

professional learning communities project was that through having interdisciplinary

professional learning communities of teachers that shared the same students, those

professional learning communities would be able to communicate about the well-being

and academic needs of individual students as well as plan interdisciplinary lessons and

projects to increase the connectedness between subjects and the engagement of the

students in learning. Then, through having the same-subject professional learning

communities, the same-subject teachers could reflect on data and exchange strategies

collectively to increase the academic success of their students in their subject matter.

One district and two school leaders were involved in the Freshmen Center math and science professional learning communities. Ms. Batson[3] was the Executive Director of Professional Learning Communities for Forest ISD and oversaw all ten of the Freshmen Centers as well as the professional learning communities' coordinators at each campus. Ms. Givens was the Professional Learning Communities Coordinator at Evergreen High School, and Ms. Peterson was the Dean of Instruction at Evergreen High School. In addition to the three leaders involved in the Evergreen High School freshmen math and science professional learning communities, six teachers were involved as well. The algebra I professional learning community comprised Ms. Lee, Ms. Robinson, and Mr. Okonkwo, and the IPC professional learning community comprised Ms. Dickerson, Ms. Oliver, and Ms. Phan. Even though the Freshmen Center and, subsequently, the freshmen math and science professional learning communities had been in place for merely three years, only the Evergreen High School Learning Communities Coordinator and one algebra I and two IPC teachers had been part of the initiative from the beginning. Thus, while there were several professional learning communities in several subjects in operation at this school, the researcher focused only on the math and science professional learning communities because the university project for which the researcher was a graduate assistant was only focused on the disciplinary fields of math and science.

Results

Through data collection and analysis, four difficult and even painful themes emerged concerning the professional learning communities at Evergreen High School: 1)

deleterious conditions, 2) negative factors influencing professional learning communities 3) problematic implementation of professional learning communities, and 4) continued failure. While these themes individually are important to understanding what occurred in the algebra I and IPC professional learning communities at Evergreen High School, these themes also affected one another. The deleterious conditions were part of the negative factors that influenced the professional learning communities. Additionally, both the deleterious conditions and the negative factors influences the professional learning communities affected the implementation of those professional learning communities. Furthermore, the deleterious conditions, the negative factors influencing the professional learning communities and the problematic implementation of the professional learning communities were part of the reason why Evergreen High School experienced continued failure. While these relationships were not causal, they affected one another and the ultimate failure of the school (See Figure 1).

Deleterious Conditions

When this study began, Evergreen High School was in jeopardy of being reconstituted due to continuous failure to meet Annual Yearly Progress (AYP) as outlined by the No Child Left Behind Act (2002), which mainly was indicated by the school's significantly low scores on the state-mandated assessment and two years of a school-wide below average[4] rating. In fact, the Forest ISD district leadership had responded to the academic performance of Evergreen High School by placing pressure on the school's leaders, which only seemed to heighten typical urban schooling difficulties. Additionally, in the three years in which the professional learning
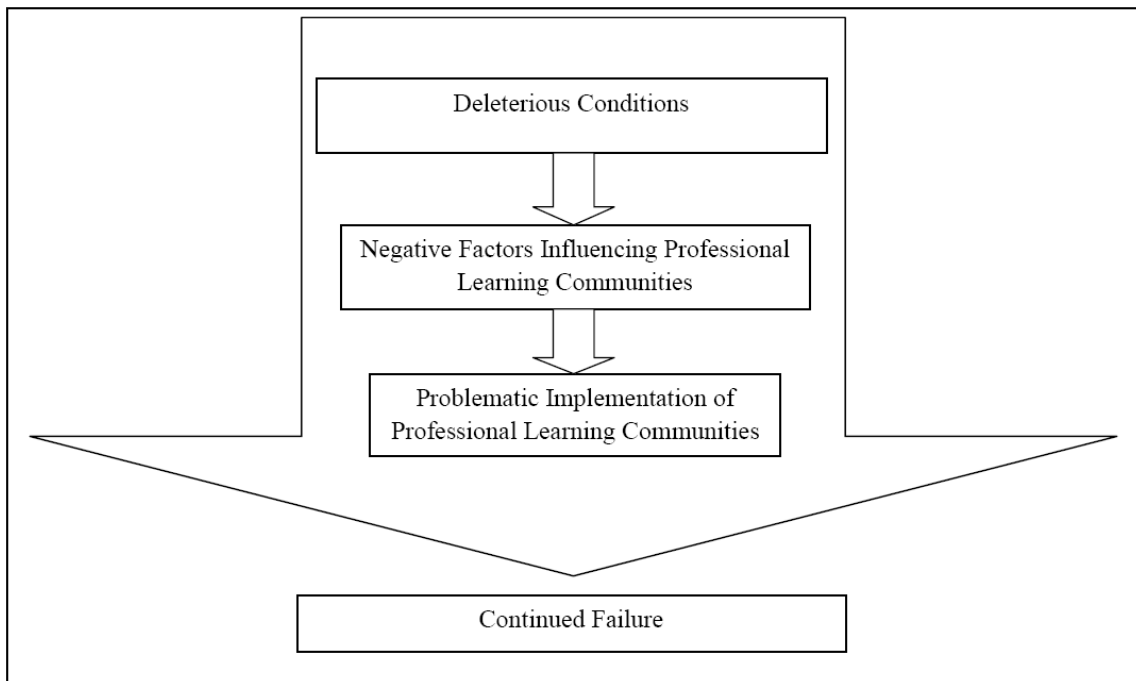
Figure 1.   **Relationship between Factors Influencing the Algebra I and IPC Professional Learning Communities at Evergreen High School**

NOTE: The three factors of deleterious conditions, negative factors influencing professional learning communities, and problematic implementation of professional learning communities contained in the larger arrow have smaller arrows to show the influence of each factor on subsequent factors. Additionally, the three factors contained within the larger arrow show their combined influence on the continued failure of Evergreen High School.

communities were implemented as part of the Freshmen Center at Evergreen High

School through the professional learning communities' project, several changes in

leadership had occurred. Significantly, the head principal had changed three times during

the three years. Ms. Dickerson, the lead IPC teacher, explained how this had affected her

as a teacher and how she saw this affecting the students:

My experience at Evergreen has been interesting. And, I say that because we have had three principals in three years at Evergreen. So, the three years that I've been here, I have [had] a new principal every year…and, it's like as soon as you get to know an individual and how they want things done, then you have a new one coming in requesting something different.…I know how to adapt to change. But when you're at a high school and it's kind of a series of people's eyes when you go through this four-year transformation so to speak from young adulthood into the beginnings of adulthood, it'd be nice to see some consistency, if for no one else than the children…because a lot of them don't have any…consistency at home. And so, one of the very few places that they get it is here. And if the leader keeps changing, the kids pick up on it, too, because it may be positive or negative on how folks feel about the leader. And then, it just kind of trickles down from there in other situations in the building. So, I've found that probably the most difficult.

While admitting that she personally knew how to adapt to change, Ms. Dickerson realized that three principals in three years had forced her to meet different expectations based on the differing principal personalities. And, she had found that to be the most difficult aspect of her time at Evergreen High School. In addition to personally affecting her, Ms. Dickerson saw the way her colleagues responded to the principal changes in often divergent ways. But ultimately, she believed the principal changes had affected Evergreen High School students at a critical time in their lives. Furthermore, Ms.

Dickerson thought that because of the principal transitions, the school had failed to be a place of stability for students whose home lives were often unstable.

While there had been three principals in the three years of the Freshmen Center, leadership turnover seemed intensely elevated in the 2006-2007 academic year, which included the principal of Evergreen High School being removed at the end of the first semester with an interim principal being appointed for the second semester. Moreover, two Evergreen High School assistant principals were removed as well during the 2006-2007 academic year, with one ultimately being removed from the district and the other one being placed at another Forest ISD high school as an assistant principal for a few months only to return to Evergreen High School at the end of the year as an assistant principal once more. Thus in one year, a head principal and two assistant principals had changed.

Aside from the leadership transitions, Evergreen High School struggled to employ and retain teachers. Ms. Robinson explained, "We've always had openings for teachers. We had two vacancies last year." In fact, Evergreen High School had an opening for a math teacher in the 2006-2007 academic year that was not filled until the second semester. But once the school found teachers to fill positions, they often did not stay, which caused a burden for the other teachers. Ms. Lee communicated that "for the last two years…we [have] lost [a] math teacher. And both years, I ended up absorbing those kids into my classroom." She continued to explain how difficult this had been the second year she absorbed students:

Last year, you know, we had problems, difference with absorbing other teachers'

classes, and those made the other classes more difficult because those kids didn't

have a teacher really. They had a teacher for a couple of weeks. And then, they

didn't have a teacher for months. They had subs and stuff. So especially the

classes that we took over, the whole classes, they just weren't even interested in

passing or anything…because they'd spent so much time doing nothing really.

Ms. Lee saw how having to absorb students from other teachers affected her students

because of the differing attitudes in the students who had to be absorbed based upon

their experience without having a stable teacher and her original students who had

experienced a stable teacher the entire year.

Yet, the algebra I teachers were not the only freshmen teachers to experience

absorbing students from other teachers in the three years the Freshmen Center had been

in place. Ms. Dickerson explained how the IPC teachers had experienced that as well,

"The first year [of the Freshmen Center] we had Mr. Conner, and…he left after the fall

semester. So, that really put a blunt of extra work on me and Ms. Phan because we had

to absorb his kids." While Ms. Dickerson discussed the additional amount of work

involved in absorbing another teacher's students, she also talked about how Mr.

Conner's students originally questioned why they had to be in her class and expressed

how different it was compared to Mr. Conner's class. So explaining the change in

teachers to the students was also part of the "blunt of work" that was added to the

situation. Thus, students were continuously affected by these changes.

While changes in principals and teachers during the three years of the Freshmen

Center had caused some difficulties, the dynamics of the student population in the

classrooms had been a struggle as well. In fact, one of the more serious issues

concerning the student population was the number of students repeating their freshmen

year. Ms. Givens, the Evergreen High School Professional Learning Communities

Coordinator, provided details concerning the situation for the 2006-2007 academic year:

> Here at Evergreen, we have…I'm going say three hundred to four hundred and
>
> twenty-five first-time [freshmen] that come in. We had a population of about two
>
> hundred and fifty that were repeaters when we started…and when they're in the
>
> Freshmen Center with our first-time freshmen, our first-time freshmen pick up
>
> behaviors that they normally wouldn't pick up until after Spring Break…so, you
>
> know, I mean it's just that [the repeaters] really don't need to be with the first
>
> timers because they're sixteen and seventeen years old. And, it's just not a good
>
> dynamic.

Ms. Givens thought part of the problem with behavior as well as academics in the

Freshmen Center was the result of mixing large numbers of students who should have

been classified as sophomores and juniors in classes with first-time freshmen.

Consequently, through multiple leadership transitions and teacher transitions,

Evergreen High School became a place in which it became difficult to work, much less

work effectively. These transitions were ultimately harmful to students who were

struggling to stay in school and succeed in their classes in order to move to the next

grade level. Also, not surprisingly, the conditions at Evergreen High School had an effect on the professional learning community reform effort.

Negative Factors Influencing Professional Learning Communities

Within the context of Evergreen High School, several factors influenced the implementation, maintenance, and growth of the freshmen algebra I and IPC professional learning communities in the Freshmen Center. These factors included a lack of organizational support, a lack of leadership support, and a lack of clear lines of authority.

Lack of organizational support. Even though the professional learning communities had been in existence for two years prior to the 2006-2007 academic year, neither the algebra I professional learning community nor the IPC professional learning community had met on a consistent two-times-a-week basis until the third and final year of the professional learning communities project. The main reason the communities did not meet had to do with the teachers having to absorb students from missing teachers' classes, as was discussed above. Hence, they had to give up the learning community periods they had been allotted to create new sections of algebra I. Ms.Lee explained:

> This is the first year truly that we've had a common planning period where we could sit down. Normally, it was either after school or before school when we had to get together…the last two years, we had a math coach. Our math coach last year tried to lay down a format, you know, for us to follow. And, it worked pretty good. But, you know, we kept finding that since we didn't have that chance to talk to each other often that he made us stay on Thursdays after school,

so we can plan. But, that was just one day a week. And then, that hour ended up

being instead of us planning for this week, we need to plan for the week that's up

and coming. And, you know, scheduling conflicts. [The school leadership] better

not call a faculty meeting because now we can't meet, you know, after school.

(sarcasm)

Thus, without a common period without students during the school day, the algebra I

professional learning community struggled to meet in the first two years of the Freshmen

Center.

Additionally, organizational factors affected whether classroom resources were

able to be obtained by teachers in advance. Ms. Dickerson explained how unclear

scheduling due to freshmen retention affected her in getting resources for her classroom:

The delay on getting [construction paper for foldables] is really a hassle. And,

people would say, "Well, why don't you order it before the summer?" But

because there is such a shortage for science teachers and depending on how many

kids do fail or pass a subject, the counselors really don't know until the school

year's out who's going be teaching what. Because, Ms. Oliver was telling me

today that she was hired to teach biology. But when the school year started, she

was told, "Oh, we [are] going to need you to teach IPC."

Thus, larger organizational factors prevented some of the teachers from having access to

resources in a timely manner or having the materials that aligned with the classes they

were teaching.

Additionally, organizational factors prevented Ms. Phan from getting a classroom

with a lab instead of a traditional classroom with only desks. She explained her need:

> I need a lab. They put me in here…I was in 212. There was a lab. And then, 205,
>
> had like counters and water and other things…they say I can use 205. But, they
>
> never give me the key…like the beginning of the year…no key found.

Consequently, Ms. Phan taught a lab-based IPC course, but did not have the proper

facility in which to teach that course the entire year. After repeatedly discussing her

issue with the Evergreen High School leadership at the beginning of the year with only

the response that a key was not available to get into the empty lab classroom, she

resigned herself to attempting to model labs for her students. After having a lab

classroom for the two prior academic years to 2006-2007, she found it difficult to change

her pedagogy from a hands-on method to more of a show-and-tell method for labs.

Lack of leadership support. Much of the responsibility for the Freshmen Center

and subsequently the algebra I and IPC professional learning communities rested on Ms.

Givens' shoulders as Evergreen High School's Professional Learning Communities

Coordinator. Ms. Givens mainly focused her time on the interdisciplinary learning

communities and not the subject-specific communities:

> I don't watch over my English, social studies, and science like that. That's why a
>
> lot of their conversations I can't really pinpoint any more than what I see when I
>
> do get to pop in. And they may have gotten deeper than [just talking about the
>
> when and how to teach the curriculum]. I don't know because I'm comfortable

with at least I know they're in there, and they're talking to each other, at the very

least, about the scope and sequence.

For Ms. Givens, paying attention to the depth and complexity of the same-subject

professional learning communities was not a priority. Part of the reason it was not a

priority for her was because she felt like she did not want to create conflict with teachers

who did not see her role in the same way she did:

Older teachers, you know, who've been in the business for a while, they tend to

think I sort of overstep bounds sometimes. And…what I do is make

recommendations. And, I have been called in to say, "Okay, you need to be

tougher." You know, I said, but, at the same time, I do have my comfort zone,

and I don't want to step on toes.

Aside from the pressure from veteran teachers, Ms. Givens "comfort zone" concerning

instructional leadership was mainly in the algebra I professional learning community,

since she had been an algebra I teacher herself. Therefore, due to Ms. Givens

uncomfortablity concerning the content knowledge of the core subject disciplines other

than math, she was more focused on the collaboration among the interdisciplinary

professional learning communities.

Another part of the reason Ms. Givens did not engage in instructionally leading

the same-subject professional learning communities was because she struggled with

what her leadership role was and what she wanted it to be:

I'm supposed to be the facilitator and just kind of watch and oversee and let them

direct me and…be a resource to them if they need me to get them something, if

they need me to observe something. That's kind of how I want to be utilized.

But, it doesn't always work out that way, and I do have to be hands on. But, I'd

kind of like to back off and let them get their own identity and developments and

interventions and stuff.

While Ms. Givens wanted the teachers in the Freshmen Center to be able to direct

themselves in their professional learning communities and use her as an extramural

resource, she found herself having to directly facilitate the direction of the professional

learning communities in order for the teachers to accomplish what they needed to

accomplish in the professional learning communities.

An additional reason Ms. Givens struggled to interact with the same-subject

professional learning communities in a leadership role came from the lack of support she

had from school leadership for her leadership of the Freshmen Center. In fact, Ms.

Batson could not perceive any reason other than the lack of growth in school leadership

to explain why the Freshmen Center struggled so much:

There are active leadership issues on their campus that are interfering with

[Evergreen High School's Freshmen Center's] spirit and growth…we've had a

constant change of leadership there, the indifference of the middle leadership, the

imperviousness to change, you know, the intransigence of the leadership one way

or another. They just aren't quick to learn. The [Freshmen Center professional

learning communities have] grown a lot faster than the [school] leadership is.

And their potentiality keeps getting squashed from above. So, lots of potential,

not happening…

Consequently, from her position outside of Evergreen High School, Ms. Batson noticed that the Freshmen Center teachers had potential. However, this potential never seemed to be realized. So, according to Ms. Batson, the only explanation for the problems in the Freshmen Center was the lack of learning of the school leadership.

  Lack of clear lines of authority. Aside from a lack of leadership in general, the algebra I and IPC professional learning communities suffered from a lack of clear lines of authority. Sometimes it was not clear what the lines of authority were for the teachers concerning what to do about instruction. Ms. Dickerson expressed confusion about the lines of authority when she discussed how she desired for school leadership to be more involved in the professional learning communities:

> I would like to see a little more involvement from [school leadership], just because we don't see them that often. But, I can't honestly even tell you who's supposed to be our designated administrator (appalled laugh) for the content area. I guess, maybe it would be Dr. Jones. But then, she's involved a lot with [state-mandated assessment] testing. And, that takes up a lot of her time. And then, the whole change of principals, I think it just kind of got lost in the shuffle of things.

From Ms. Dickerson's perspective, the instructional school leader for the science department was not clearly apparent to her. However, she supposed that the responsibility seemed to be not associated with any one school leader due to the change in Evergreen's head principalship.

  Yet, Ms. Dickerson's IPC professional learning community colleague, Ms. Oliver, a first-year teacher, was so confused by instructional messages, she struggled to

understand who's authority was the one she should follow, "The Dean [of Instruction] told me this week we are supposed to be still teaching. The Assistant Principal told me, 'This is Dead Week. All you're doing is reviewing.' So, it's like, 'Who do you listen to?'" As a novice teacher, Ms. Oliver was simply trying to discover the rules of teaching, but found that those who were in school leadership positions often contradicted each other, leaving her to question whether there were any clear lines of authority.

In fact, Ms. Givens discussed how even she, as the Professional Learning Communities' Coordinator, had to mediate the different messages the professional learning communities received by making sure she did not contribute to double work for the professional learning communities due to conflicting messages. She explained how she mediated the double work concerning a form that the professional learning communities had been assigned by the Dean of Instruction to complete during their professional learning community meeting times together:

> There's [a form] that I gave them, and then there's one that our [Dean of Instruction] gave them. So whichever one they decide to use is fine with me. Because now all of the sudden, she's requesting certain things from them, and it makes no sense to require them to write it twice…she really just switched that over like in April. That's to get them talking more about data versus the lesson plan.

Even though Ms. Givens had given the professional learning communities forms to complete in each of their meetings, the Dean of Instruction had decided two months before the end of the academic year that the teachers needed to complete another form

that focused on data. Thus, Ms. Givens decided that one form with documentation of

what was occurring in the professional learning community meetings was important

regardless of whether the form had come from her or the Dean of Instruction.

However, the Dean of Instruction was not the only one that usurped Ms. Givens'

endeavors. She had an experience with a department chair that reminded her of the

boundaries of her instructional authority:

> I have been in a meeting with my World Geography teachers, and the department
>
> chair comes in. And, it was clear that in his eye I was overstepping my bounds.
>
> So, I kind of backed off a bit, and I just kind of communicate with my World
>
> Geography teachers. But when the department chair's there, I back off because I
>
> don't want to step on any toes. Because, it's not really clear to him, what's really
>
> supposed to be happening in those meetings.

Although Ms. Givens was the one trained in the Freshmen Center concept and

conducting the professional learning communities, since Evergreen's Social Studies

Department Chair saw her position in a way that was contrary to how Ms. Givens had

been trained, Ms. Givens decided not to be as involved with the world geography

teachers in the Freshmen Center as much as she thought she needed to be.

Thus, many negative factors influenced the professional learning communities at

Evergreen High School. Specifically, without leadership support the professional

learning communities had neither organizational support nor lines of authority that were

clear. These negative factors contributed to the challenges the algebra I and IPC teachers

faced in creating and being part of professional learning communities that would increase student achievement.

Problematic Implementation of Professional Learning Communities

Due to the factors affecting the algebra I and IPC professional learning communities in the Freshmen Center at Evergreen High School, not surprisingly, even in the third year of implementation, they minimally displayed any semblance of being professional learning communities.

Difficulties with creating community. Both the algebra I and IPC Evergreen High School professional learning communities struggled to create communities. As a first-year teacher, Ms. Oliver had trouble understanding why her colleagues did not want to engage in working together to alleviate the workload each of them individually held:

Me, Ms. Phan, and Ms. Dickerson didn't start working together until probably second semester and that was more of me being boisterous. By that time, I was fed up with nobody helping me. We're all teaching the same thing. And, [there] was no communication. So, I'm like, "It doesn't make sense. If we're all teaching the same thing, why don't we work together? Make it easier on us."…So, it just made…more sense [to] take some [of] the pressure off of all of us by working together. So eventually, they bought into the idea, and we started working together. And after that, it's been smooth…so, we did it. But, I guess they weren't used to that.

Ms. Oliver was confused as to why she had been told that two days a week she was supposed to be meeting with her IPC professional learning community, but her IPC

professional learning community failed to meet. However, she refused to not get help from her colleagues and forced them into meeting. Thus, in year three of the Freshmen Center and the professional learning communities' project, she believed the other two teachers who had been in the Freshmen Center for the entire three years were not used to meeting. Not surprisingly, Ms. Oliver was correct in her assumption. Due to absorbing other teachers' classes and the physical proximity of classes in the prior two years, the IPC professional learning community had not met. However, Ms. Oliver due to her need for help from her colleagues changed that.

While the IPC professional learning community eventually started meeting together during the year, only two of the three teachers in the algebra I professional learning community met together. When asked to generally talk about the algebra I professional learning community, Ms. Robinson said, "I think it works real well. Me and Ms. Lee met all the time. We hardly ever saw Mr. Okonkwo." She continued by explaining how they incorporated him in the group even though he did not come to the meetings:

> And, Mr. Okonkwo, we just give him the materials. "Here, this is for next week."
> "Okay. Thank you." I mean, he doesn't ask any questions about it. "Oh, thank
> you, thank you." [But then the next day,] he'll go, "How do you…?" Yeah, and
> this is the stuff that Ms. Lee and I have talked about already.

What was most frustrating to Ms. Robinson about the fact that Mr. Okonkwo did not come to the professional learning community meetings was that he would ask questions about the materials and lessons that Ms. Lee and she provided for him that had already

been discussed in the meetings. In contrast, Ms. Lee's frustration with Mr. Okonkwo not

coming to the algebra I professional learning community meetings was the absence of

sharing ideas and contributing to discussions:

> And, you know, I always tell him, it's not what *I* say we ought to do. This is what
>
> *we* say we ought to do. Every now and then, I can get him to contribute
>
> something. That's because I'm forcing him to say something. Because, he always
>
> says, "You girls, you got it. You got it." And then, [I'm like], "Yeah, but I want
>
> to know what you got, too."

As the lead algebra I professional learning community teacher, Ms. Lee wanted the input

of the other teachers in decisions concerning the professional learning community.

However, Mr. Okonkwo had to be forced to contribute. Thus in both the IPC and algebra

I professional learning communities, individual teachers had to force other teachers into

community-like actions in order for some semblance of community to be created.

Focusing on teaching over learning. While the IPC and algebra I professional

learning communities at Evergreen High School struggled with creating community,

they also struggled to create the critical characteristics of professional learning

communities, specifically reflective dialogue that focuses on student learning, which can

lead to increased student achievement (Louis & Marks, 1998). In fact, both the IPC and

algebra I professional learning communities spent the majority of their professional

learning community meeting times having discussions that were only concerned with

lesson planning. For instance, Ms. Givens relayed how she had continually seen these

conversations occur in the algebra I and IPC professional learning communities:

I always see [the algebra I and IPC professional learning communities] making

sure they have the correct copies. I mean, it's kind of consistent. It's a lesson

plan. It's the work that [they're] going to be doing for the day—class work,

notes, homework, tests, quizzes.

Thus, Ms. Givens had consistently seen the same scenario in the IPC and algebra I

professional learning communities of what was "going to be" done instead of what had

been done and how effective it had or had not been, i.e., the kind of reflectivity needed

for successful professional learning communities.

Since planning ahead seemed to take relatively less time than the two-times-a-

week professional learning community meetings provided for the IPC professional

learning community, the teachers chose not to continue to meet once the lesson plans

were completed. Therefore, Ms. Dickerson explained why the IPC professional learning

community had only met the first two weeks of the eight weeks the researcher was at

Evergreen High School:

We're done for the rest of the year. We went ahead and finished up. We're

usually pretty quick…if you catch us on a lesson planning day, you might see us

knock out two to three weeks in one day. And, that includes worksheets, what we

are going to do, how we are going to apply it, [the] different labs that we plan to

do, quizzes, things of that nature.

Most of the IPC professional learning community meetings were spent dividing up the

work that needed to be accomplished between the three professional learning community

members and individually completing the parts assigned in the same room together.

Once roles were discussed and work assigned, very little communication, or collaboration, occurred. Then, when the lesson plans had been completed for the semester, the teachers only met based on need and convenience. Therefore, beyond focusing on lesson plans, which included aligning with the district curriculum, very limited amounts of the teachers' time was spent thinking about student learning.

When Ms. Lee mentioned that the school was encouraging both teachers and students to create profiles concerning the student objectives that were being missed, and she was asked how often profiling occurred, she responded:

> Well, we haven't done it a whole lot this year because it was not…required until the new interim principal came in, and he was all about profiles, profiles, profiles. So, what we did any time we came up with a packet for the kids, which would cover a variety of [state objectives], then we would sit and profile them and say, "You know, objective 3A was missed by a lot of our kids," and, you know, "so we need to go back over that."

In explaining how the profiling conversations in the algebra I professional learning community occurred, she mentioned that very little actual profiling had occurred due to it not being required by previous school leadership. However even with the new school leadership, the algebra I professional learning community was the only subject-specific professional learning community in the Freshmen Center required to do profiling because math and reading were the only subjects tested by the state-mandated assessment at the freshmen level, and the language arts scores were not low enough for school leadership to require it.

In fact, discussing student learning and the way teaching practice affected student learning was only considered a couple of times a year as mandated by the Forest ISD leadership, according to Ms. Givens:

Researcher: And then, there's that other level of where…you go, "Okay, are we wording the questions correctly? Are we even on track for matching up student expectations with state-mandated assessment objectives? Are we just taking everything at face value?" How often does that happen?

Ms. Givens: Twice a year because it's regulated by the district [leadership].

Thus, any kind of focus on student learning and thinking about how well students were doing, what needed to be re-taught, and how future lessons needed to be constructed based on previous lessons only occurred at Evergreen High School when it was regulated through some activity created by district or school leadership. Otherwise, both the algebra I and IPC professional learning communities proceeded in their meetings to think about how they could collectively and expeditiously create lesson plans focused on teaching instead of student learning.

Therefore, due to the multiple contextual issues and absence of supports for the algebra I and IPC professional learning communities at Evergreen High School, the teachers in these communities struggled to create communities that would facilitate change in teacher practice for increased student learning. In fact, the teachers in the algebra I and IPC professional learning communities seemed to be unaware of the need to focus on the daily, weekly, or monthly achievement of the students. The teachers' lack

of supports and lack of capacity to implement the professional learning communities effectively, then, contributed to the continued failure at Evergreen High School.

Continued Failure

By the time this study was completed, Evergreen High School was in the early phases of reconstitution since state-mandated assessment scores, a signifier of meeting or not meeting AYP, for the study year had been received, and Evergreen High School had, once again, failed to meet AYP and had received a school-wide rating of below average. Part of the reconstitution process involved a handful of teachers at the school receiving notification that their service to Forest ISD had been terminated, and they would not receive a contract for the following year. Both Ms. Lee and Ms. Robinson received termination letters. In addition, one of the reasons the 2003-2004 Evergreen High School leadership had decided to be part of the Forest ISD three-year professional learning communities project in 2003-2004 to implement the Freshmen Center and the professional learning communities the following three years was due to Evergreen High School's freshmen retention and subsequent dropout rates. Table 1 provides further explanation of what occurred with those rates at Evergreen High School from the class of 2004 to the class of 2008.

Consequently, for Evergreen High School, the lack of academic success as shown by a below average rating on the state-mandated assessment for three consecutive years had severe consequences for the school through reconstitution. However, even more startling was the lack of success the school had in retaining students, given the special programs brought in to address this problem. When the Freshmen Center was

TABLE 1
Evergreen High School Student Status and Completion Rates
for Class Years 2004-2007

Class Year	% of students graduated on time	% of students received a GED	% of students continued high school	% of students dropped out
2004	68.2%	2.6%	15.3%	14.0%
2005	56.8%	3.6%	21.9%	17.7%
2006	45.7%	2.2%	18.4%	33.7%
2007	32.6%	1.2%	21.0%	45.2%
2008	41.1%	1.9%	12.7%	44.3%

implemented in the fall of 2004, the decision was made based upon concern for

freshmen retention and subsequent dropout challenges. Yet by the time the Forest ISD

professional learning communities' project was over three years later in 2007, students

graduating on time was at an all-time school low, 32.6%, while dropout was at an all-

time school high, 45.2%. Additionally, the freshmen that entered the Freshmen Center in

the fall of 2004 who were on track to graduate by 2008 did not significantly change the

dropout situation. Thus, the concern over the 15.3% retention and the 14.0% dropout rate

that spurred Evergreen High School leadership to be a part of the Forest ISD

professional learning communities project in 2004 seemed minimized by the time the

three-year project was complete because the retention rate percentage had increased,

and, more significantly, the dropout rate percentage had tripled.

Discussion and Conclusion

Cases of failure in school reform are often difficult to process and explicate and

sometimes are even painful to comprehend. And, this case is definitely an example of

failure, complex, urban high school reform failure. The reasons for that failure are fairly clear. Evergreen High School personnel had historically failed in ensuring the academic success of their students. With pressure placed on the school personnel to reform in order to avoid possible reconstitution, certain supports needed to be in place for them to make the transformation required to reform through professional learning communities. However, those supports were absent. Most importantly, the head principal changed in the middle of the academic year, causing confusion and frustration, especially since the change brought a new principal to the school after the former principal had only been at the school a year and a half. Without head leadership stability, other leadership in the school struggled to understand their roles and coordinate their efforts in a unified direction that would structure the professional learning community reform work of the teachers. Subsequently, the teachers alone did not have the capacity to implement the professional learning communities at the level required to elevate their teaching practice to increase student learning. Thus, even though professional learning communities have been shown to increase student achievement (Vescio et al., 2008) in urban high schools (e.g., Louis & Marks, 1998; Supovitz, 2002), as a reform effort, they are context dependent.

In fact, the implications of this failure case are clear in the literature. While no other research has documented an in-depth case of urban high school professional learning community reform failure, this research validates points that have been made by several scholars. Most significantly, this case confirms the salient need for organizational factors (Kruse et al., 1995) to be in place in order to facilitate the

development and growth of the critical characteristics needed to create effective professional learning communities (Kruse et al., 1995). Particularly needed in professional learning communities is the social and human resource organizational factor of supportive leadership. As the Evergreen High School case shows, without that one organizational factor, other organizational factors and the professional learning community characteristics needed in order to reform through professional learning communities are affected. And clearly the two principals at Evergreen High School struggled to be instructionally supportive to the professional learning communities due to their short tenures at the school. However, it is also true that district leadership failed to mediate the situation to ensure that the reform would be successful.

Yet, while it would be simple to fault the district leadership for not securing the right supports so the professional learning communities could potentially succeed, it is important to remember the larger context with which the district leadership contended on a daily basis. And, like many large urban school districts across the nation (Swanson, 2009), Forest ISD had several high schools struggling to both retain students and ensure that they were academically successful. Thus, due to the sheer magnitude of the challenges large urban school districts face (Lipman, 2004), the idea of any district leadership in a large urban center being able to closely monitor reform efforts and provide needed interventions in a timely way in every struggling school is definitely a high-level expectation. Even districts that are showing incremental improvements district-wide will often have schools that are more difficult and slower to reform than others.

Aside from the challenges of what occurs within large urban school districts on a daily basis, difficulties, such as those discussed earlier, exist within the larger urban context outside of schools. It is simply true that the poverty and racism in urban centers creates steep challenges for families of color (Wilson, 1999). Indeed, for many such families, the low wage work of their children is often crucial to the family's economic survival (Basu & Van, 1998). Furthermore, the students and their families constantly face the attractions of gangs and drugs or the deleterious effects of gangs and drugs (Sampson & Wilson, 2005). There are also mobility issues, health issues, legal issues (like disproportionate rates of arrest and prosecution for men of color), among others (Brunson & Miller, 2006; Ewart & Suchday, 2002; Ludwig et al., 2001). It is simply true, then, that urban environments are difficult landscapes for low-income families, their children, and the schools that serve these children.

Accordingly, it is important to remember that this research is really about urban students. As a result, when urban schools fail, they fail children. These children have lessened opportunities because they fail to get the education they deserve. Their potential is diminished because they happen to live in areas and attend schools that do not foster that potential. However, where a child lives and attends school is rarely chosen by the child. Therefore, when urban schools fail, urban children fail.

With the high percentage of African American and Latino/a students attending struggling urban schools, the failure of these schools to educate them is an equity issue, a civil rights issue. In a democratic society, this inequity is inexcusable. Hence, this failure case serves as a painful reminder of what needs to be done to ensure that equitable

opportunities to learn occur for all children, including urban children. This failure case is also a reminder that all reforms are contextual, and when the context fails to be supportive, the odds of the reform being successful are virtually nil.

CHAPTER III

PROFESSIONAL LEARNING COMMUNITIES AS A LEADERSHIP

STRATEGY TO DRIVE MATH SUCCESS IN A HIGH SCHOOL SERVING

DIVERSE, LOW-INCOME STUDENTS: A CASE STUDY

"I think from PLCs…that discussion, that time to sit down and talk that so many times is missing from school because we get so busy doing school that we don't educate."

- Dr. Holloway, Riverside Academy Principal

Introduction

For decades, urban school districts have typically been unsuccessful at educating large numbers of students, particularly African American and Latino/a students from low-income homes (Rumberger & Thomas, 2000). At alarming rates, these students drop out of urban high schools, with some never returning or obtaining a high school diploma or equivalent (Cataldi, Laird, KewalRamani, 2009). In fact, a handful of urban districts only graduate 50% of entering freshmen (Swanson, 2009). However, in the last decade, with the emphasis on standards-based accountability, considerable pressure has been placed on high schools and districts, urban or otherwise, to no longer fail to educate *all* students. Yet, specifically within the urban high school context, the complexities and difficulties that come together in such environments often make successful reform efforts extremely challenging (Hill, Campbell, & Harvey, 2000), whether those reform efforts are chosen by urban schools and districts (Simmons, 2006) or mandated through local and national policy (Hess, 2005; Lipman, 2004; Skrla, Scheurich, Johnson, &

Koschoreck, 2001). Regardless of the difficulties, though, the urgency of not losing more urban students every year to academic failure and dropping out necessitates research that investigates the most promising reform efforts.

One of the most promising ways of creating high school reform that has been advocated is through transforming schools into community-like learning organizations, often called *learning communities* or *professional learning communities* (Hord, 1997; Stoll & Louis, 2007). Significantly, these professional learning communities have been shown to have the potential to change school culture (e.g., Englert & Tarrant, 1995; Hollins, McIntyre, DeBose, Hollins, & Towner, 2004; Strahan, 2003). Further, part of this potential change in school culture is due to increased collaboration among teachers (Englert & Tarrant, 1995; Louis & Marks, 1998; Strahan, 2003). Indeed, research has shown that schools that exhibit high levels of professional learning community characteristics, like collaboration (Louis, Kruse, & Associates, 1995), have teachers who engage in improved authentic pedagogical actions that lead to increased student achievement (Louis & Marks, 1998). Similarly, Supovitz (2002) and Supovitz and Christman (2003) report changing instructional practices is a key to professional learning communities having an impact on student achievement. Additionally, other research (e. g., Reyes, Scribner, and Scribner, 1999) has shown that when schools acted as professional learning communities, specifically Hispanic students demonstrated higher levels of academic achievement.

Therefore, due to the potentiality of student achievement increasing through professional learning community reform efforts, numerous concrete endeavors to

experiment with professional learning communities are now being mounted in urban

schools. Yet, limited empirical research has been done on these now widely used

learning communities, which means that little is known concerning the dynamics as well

as effectiveness of these communities, particularly in a variety of contexts (Vescio, Ross,

& Adams, 2008). There is especially a dearth of research surrounding professional

learning communities within urban high schools that have repeatedly struggled with

achievement gaps and reform efforts (Louis, Kruse, & Associates, 1995; McLaughlin &

Talbert, 2001). However, if professional learning communities are going to be advocated

as a successful, research-based urban reform strategy, a need exists for researchers to

explore the actual implementation of these communities within the context of diverse,

urban high schools struggling with improving student achievement.

Organizational Learning and Professional Learning Communities

Organizational Learning

The concept of organizational learning (Argyris & Schön, 1978; Garvin, 1993;

Hedberg, 1981; Huber, 1991; Levitt & March, 1988; Rait, 1995) is based on the idea that

through organizational learning processes, organizations can learn from direct

experience (Levitt & March, 1988), examine and question values that guide

organizational actions (Rait, 1995), produce new knowledge that is helpful to the

organization (Hedburg, 1981; Huber, 1991), and change aspects of organizational culture

(Cook & Yanow, 1993). Moreover, this perspective on organizational learning has been

significantly advanced with the work of Senge (e.g., 1990). Shortly after *The Fifth*

Discipline emerged, Senge's (1990) ideas about increasing organizational capacity and

creativity moved into the educational environment (e.g., Rait, 1995; Senge, et al., 2000). The idea of a learning organization "where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together" (Senge, 1990, p. 3) intrigued educators struggling to plan and implement school reform. As Senge's learning organization concept was explored by educators, the idea of *learning communities* or *professional learning communities* emerged in the mid-1990s within educator discourses (Louis, Kruse, & Associates, 1995; McLaughlin & Talbert, 2001).

Professional Learning Communities

Since the emergence of the idea of schools as learning organizations through professional learning communities two decades ago (Senge, 1990), much literature has emerged on the use of a cadre of teachers meeting together to increase their instructional effectiveness so as to improve student learning (Louis & Marks, 1998). In particular, the school-based reform effort of professional learning communities has arisen from two suppositions. One of those suppositions is that teachers in context with one another best understand the same day-to-day experiences of their fellow teachers (Buysse, Sparkman, & Wesley, 2003). The second supposition is that teachers in collaboration are able to push their practice further to engage in more effective pedagogy, including employing inquiry-based learning, meeting the needs of diverse learners, and using the knowledge of colleagues to leverage more opportunities for their own students (Cochran-Smith &

Lytle, 1999; Reyes et al., 1999; Talbert & McLaughlin, 2002), all of which have the potential to ultimately increase student learning.

While professional learning communities prospectively could change teacher's pedagogical practices to more effective instruction, professional learning communities require a shift in thinking about teaching from an isolated endeavor to a collaborative endeavor because community is about collectivity beyond individuality and constructive dependence beyond limiting autonomy (Sergiovanni, 1994). Additionally, in professional learning communities, teachers have to become continuous learners who seek and share knowledge (Hord, 1997) and have an inquiry as stance disposition toward learning (Cochran-Smith & Lytle, 1999). This inquiry as stance disposition requires teachers to constantly consider how to improve their practices, knowing that the process of inquiry is continual and without end due to the fact that there will always be more to learn to improve teacher practice for increased student achievement (Cochran-Smith & Lytle, 1999). Thus, professional learning communities require teachers to relinquish, to a significant degree, individual expert notions of teaching (Berliner, 1986).

In addition to asking teachers to find satisfaction in collectively improving their pedagogical practices, professional learning communities require teachers to deprivatize their practice (Kruse, Louis, & Bryk, 1995; Louis, Kruse, & Marks, 1996). Teachers deprivatize their practice by revealing to their colleagues their specific challenges and successes with student learning in their classrooms. This can be done through providing data, collectively studying student work, or observing each other's classrooms. Once teachers deprivatize their practice, professional learning communities allow them the

time and space to become reflective practitioners (Schön, 1983) by engaging in reflective dialogue with their colleagues about how their teaching practice can be improved to increase student learning (Louis et al., 1996). In fact, professional learning communities constantly and collectively focus on specific, concrete issues of student learning in teachers' classrooms (Louis et al., 1996). By this persistent, specific focus on student learning through deprivatization of practice and reflective dialogue, teachers are able to collaborate (Louis et al., 1996) concerning ways in which they can improve their practice to increase student achievement.

However, collaboration requires commitment beyond being simply cooperative and collegial (Kruse et al., 1995). For example, being cooperative does not require teachers to have shared norms and values (Louis et al., 1996) that have to be in place and constantly followed for professional learning communities to move in a unified direction. And, being collegial means that professional learning communities may share ideas, strategies, or lesson plans, but they do not necessarily enact interdependence through co-development, a key characteristic of collaboration (Kruse et al., 1995). Consequently, professional learning communities require considerable hard work and vulnerability from teachers in order for them to initially create shared norms and values, to constantly engage in reflective dialogue, to openly deprivatize practice, to continuously focus on student learning, and to concertedly move beyond collegiality to collaboration (Kruse et al., 1995).

Not surprisingly, since professional learning communities require so much of teachers in contrast to what has been traditionally required and to what teachers have

been accustomed (e.g., Lortie, 1975; Rosenholtz, 1989), attention to leadership roles in professional learning communities is critically important. To accomplish this significant change in teacher practices virtually requires a major focus from school leaders (Hord & Sommers, 2008). In other words, since research (McLaughlin & Talbert, 2001; Visscher & Witziers, 2004) shows that teachers cannot simply be given a time to meet and automatically be expected to collectively and productively engage in vulnerability and the difficult work necessary to truly improve teaching practices, school leaders must act to make sure that these professional learning communities follow the research-based guidelines (e. g., Kruse et al., 1995) that will increase the possibility of improved student learning (Louis & Marks, 1998). However, some researchers (e.g., Louis, Kruse, & Associates, 1995) hold fast to teacher professionalism in communities that are concerned with acquiring skills and knowledge, orientating to clients, and having professional autonomy without teacher behavior being highly regulated. Yet, McLaughlin and Talbert (1993) found that "notions of good teaching practice are heavily mediated by the character of the professional communities in which they work" and that "teachers define standards for their classroom practice through interactions with other teachers *and administrators*" (p. 9, emphasis added).

Thus, a teacher who has the personal discipline to increase her knowledge and skills through focusing on student learning may find herself in a professional learning community without the same discipline, regardless of the supportive organizational factors put in place by school leadership (Bryk, Camburn, & Louis, 1999; Hord & Sommers, 2008; Louis, Kruse, & Associates, 1995; McLaughlin & Talbert, 2001;

Scribner, Cockrell, Cockrell, & Valentine, 1999). Consequently, ensuring that

professional learning communities build, maintain, and sustain the characteristics needed

for increased student achievement (Louis & Marks, 1998) requires focus on the ways in

which school leadership actively engages in cultivating professional learning

communities (Mitchell & Sackney, 2006; Mulford & Silins, 2003). Fortunately, though,

several descriptions of what school leaders should do to assist professional learning

communities exist (e.g., Hord & Sommers, 2008; Ontario Principal's Council, 2009).

Nonetheless, empirical studies on the ways in which school leaders do interact with

professional learning communities to increase student achievement are minimal in the

literature (Mitchell & Sackney, 2006). In addition, such studies are needed especially

within the contexts of urban schools that have so persistently failed to successfully

educate large numbers of students, particularly African-American and Latina/o students

from low-income homes if professional learning communities are to be advocated as a

successful reform effort within these contexts.

Methodology

Qualitative methods were used to document the ways in which teachers and

district and school leaders engaged in professional learning communities in an urban

high school academy, Riverside Academy[5], in the southwest United States. The

participants were purposefully chosen because Riverside Academy was part of a

professional development initiative to bring innovative teaching practices, specifically

project-based learning, to math and science teachers in their district's high schools to

enhance both student engagement and achievement in math and science. One key aspect

of those innovative practices was to create professional learning communities for math and science teachers due to the fact that the pedagogical change of project-based learning is difficult outside of professional learning communities and especially daunting in urban high schools (Lankford, Loeb, & Wyckoff, 2002). The researcher was a graduate assistant working for the university center that provided the professional development for the district's initiative.

Even though Riverside Academy implemented professional learning communities in math and science teaching as part of the district-wide effort to increase student achievement, 9.5 of the 10 professional development days provided to the district by the university center in the 2008-2009 academic year when the study was conducted as part of the reform initiative were focused on the implementation of project-based learning within professional learning communities. The professional learning community aspect of the initiative was implemented as a vehicle to change teacher's pedagogy toward project-based learning. However, this study is solely concerned with how one of the high schools in the district, Riverside Academy, implemented the professional learning community aspect of the reform initiative.

In this study, professional learning communities are defined as subject-specific groups of teachers; in this case, one for math and one for science. Although some studies are concerned with school-based professional learning communities (e.g., Cowan, Fleming, Thompson, & Morrissey, 2004; McLaughlin & Talbert, 2006) or cross-school professional learning communities (e.g., Little, Gearhart, Curry, & Kafka, 2003), this study is concerned with only within-school (Riverside Academy) and within-subject

(math or science) professional learning communities. However, in this instance, only the

research on the math professional learning community at Riverside Academy is

addressed. The research on the science professional learning community at Riverside

Academy will be presented as a separate study in a different paper.

Data Collection

Riverside Academy was purposively selected (Patton, 1990) based on the

combination of the school personnel's desire to change the school's several years of

minimally adequate performance on yearly state-mandated assessments to a higher level

of achievement and the school leadership's commitment to reform, including the effort

to use professional learning communities as a critical aspect of their reform efforts.

Written documents, multiple school and classroom observations, observations at off-site

professional development, and semi-structured interviews (Lincoln & Guba, 1985) in a

year-long interaction with the personnel from Riverside Academy as well as personnel

from the district leadership were included. Of special importance is the fact that the

researcher observed professional learning community meetings and then the effects of

those meetings on teachers' practice in their classrooms, a linkage that has been virtually

unstudied in the research on professional learning communities.

The initial data collection began with Riverside Academy's teachers at off-site

participatory professional development for all of the district's high school math and

science teachers. This was followed with multiple in-depth school and classroom

observations that occurred two days a week over a six-month period focusing

specifically on the implementation of the professional learning communities. During this

six-month period, written documents included professional learning community minutes, faculty meeting agendas, personal teacher notes taken during professional learning community meetings, teacher lesson plans as well as handouts, and student work. Additionally, individual interviews occurred with nine participants, three school leaders, and six teachers. Each of the interviews lasted for about an hour and a half. All interviews, except informal, unplanned ones, were digitally recorded and transcribed.

Data Analysis

During data collection, ongoing analysis occurred. A constant comparative method (Glaser & Strauss, 1967) was used, whereby data were collected and emerging themes relevant to the study were selected, described, and analyzed simultaneously. Throughout the data collection process, preliminary interpretations were made. Furthermore, continuously during the observations, clarification questions were asked for the purpose of attaining a greater understanding of the observations and to verify and modify early interpretations.

Trustworthiness (Lincoln & Guba, 1985) was considered through 1) prolonged engagement, 2) thick description, 3) use of an audit trail, and 4) peer debriefing. Prolonged engagement happened by interacting with the Riverside Academy personnel for an entire academic year with two-day observations every week during a six-month period. Due to prolonged engagement, thick description (Geertz, 1973) was possible for relating a multi-faceted understanding of the math professional learning community at Riverside Academy. Additionally, professional development interaction memos, various printed Riverside Academy material (e.g., flyers, faculty meeting agendas, emails,

student work), observation notes, math professional learning community notes, math professional learning community teacher reports, and interview notes assisted in producing an audit trail as well as adding to the thick description. Peer debriefing occurred through posing clarifying questions and concerns about the data and clarifying researcher biases with others who were involved in the university center providing professional development to the district in which Riverside Academy is located as well as individuals who were not.

Through the methodology, this qualitative study examined the perceptions of the school leaders and teachers concerning the math professional learning community as a reform strategy to change the pedagogical practices of the teachers and, ultimately, the achievement of the students at Riverside Academy. Specifically, this study explored the questions of how various school personnel viewed professional learning communities, perceived their roles in such communities, and deciphered the possible linkages between these communities, on one hand, and classroom practices and changes in student achievement, on the other. While this study was initially designed to explore these questions broadly, the school leadership emerged in the actual research as a key aspect of the math professional learning community processes and practices and thus a clear focus of this research.

Context

Riverside Academy's student population is approximately seven hundred students in grades nine through twelve. Of those seven hundred students (see Table 2), almost half are Latino/a, a little over a third are African American, a little more than

TABLE 2
Demographics of Student Population at Riverside Academy

Student Population Ethnicities	Latina/o	African American	White	Asian/Pacific Islander	Economic Disadvantage
Percentage of Student Population	49%	35%	15%	1%	82%

one-seventh are White, and five are Asian/Pacific Islander. Additionally over four-fifths

are considered "economically disadvantaged" by state designation. All of the students at

Riverside Academy attend by choice. The majority of students apply their eighth grade

year to attend the school while they are still in middle school. However, students can

apply at any time to go to Riverside Academy, which sets itself apart from the other

district non-choice schools by offering six career academies—engineering,

environmental technology, finance, health sciences, hospitality and tourism, and

information technology—all modeled after the National Academy Foundation (2009).

Once students have applied, the only criterion for acceptance to Riverside Academy is

interest in one of the career academies within the school. As Dr. Holloway[6], Riverside

Academy's principal, explained:

> The only selection criteria we have is that you have to have an interest in one of
>
> the career academies. So, we don't select kids on the basis of G.P.A. or their
>
> behavior or whether or not they were a discipline problem last year or whether or

not they failed a class, you know, something like that. It's truly an open

admissions, just interest.

Thus, every incoming Riverside Academy freshman chooses a career academy of which

to be a part, and elective classes during the duration of that student's four years at the

school are taken based upon the career academy selected. While the school does have

several extra-curricular activities as well as community internships and partnerships with

local businesses as part of the career academies, the school does not have any athletic

programs. Therefore, when students choose to attend Riverside Academy, they forgo

participating in athletic programs and the extra-curricular activities associated with them

in the district's traditional high schools. And, though teachers at the school mentioned

how the students at Riverside Academy were no different than the students at the

traditional high schools in the district due to the absence of criteria for admittance,

research (e. g., Cullen, Jacob, & Levitt, 2005) points to the significant differentiated

student outcomes due to school choice when students, along with their parents, are

involved in schools that are structured as career academies.

In the 2008-2009 academic year in which this case study was conducted, three of

Riverside Academy's school leaders were involved in the math professional learning

community. When the professional learning communities were implemented in the

school at the beginning of the year, Dr. Holloway decided that she; Ms. Sassano,

Riverside Academy's associate principal; and Ms. Anderson, Riverside Academy's

instructional specialist, would all be a part of the math professional learning community

on a daily basis. The reason for this was the fact that the school's student achievement

TABLE 3
Riverside Academy Math Professional Learning Community Teachers
by Ethnicity and Experience

Teacher	Race	Years of Teaching Experience	Years of Experience Teaching High School Math	Years of Teaching Experience at Riverside
Academy				
Ms. Cross	White	18	18	3
Ms. Johnson	Afr-Am	24	5	1
Mr. Wright	White	1	0	0
Mr. Mercer	White	2	2	0
Mr. Paz	Latino	1	1	1
Mr. Rucoba	Latino	1	1	0

in math on the yearly state-mandated assessments, repeatedly in the past five years, had

the lowest performance of the four core academic areas assessed. In addition to these

school leaders, six teachers were included in the math professional learning community,

Ms. Cross, Ms. Johnson, Mr. Wright, Mr. Mercer, Mr. Paz, and Mr. Rucoba. These six

teachers comprised the entire math department at Riverside Academy. While a few

classes overlapped, each teacher mainly taught a different math subject—geometry,

algebra I, algebra I inclusion for special education students, algebra II, pre-calculus, and

state-mandated assessment math preparation and remediation. Further descriptions of the

math professional learning community teachers and their teaching experience are

displayed in Table 3. Table 3 shows that while the Riverside Academy math professional

learning community had no first-year teachers, one of the teachers was teaching math at

the high school level for the first time, and all but one of the teachers had five or less

years of experience teaching math at the high school level. Additionally, none of the

teachers in the math professional learning community had been at Riverside Academy for over three years.

While the school had four core academic areas—math, science, language arts, and social studies—Dr. Holloway decided to pilot the implementation of professional learning communities as a reform strategy in only math and science since those academic areas had been the lowest performing historically on yearly state-mandated assessments. Her intent was to subsequently incorporate the other two core academic areas in the reform strategy the following year if the professional learning community strategy was successful in its pilot year with the math and science communities.

Results

This study of Riverside Academy's math professional learning community yielded five distinct themes—implementation context of the case, leadership style of the principal, professional learning communities as the principal's key reform strategy, nature of the principal's professional learning community process, and improved teaching and learning. While these themes are significantly distinct, they also overlap, intertwine, and influence each other as is often the case in qualitative research. However, these five themes are critical to understanding the context, structures, and processes that lead to the academic success of Riverside Academy.

Implementation Context of the Case

The first theme was the implementation context of the case. Particularly, the context explains Riverside Academy's history and Dr. Holloway's tenure there. Dr. Holloway had been in the school district in which Riverside Academy is located for

twenty years in various teaching and leadership positions before she was asked by the superintendent of the district in 1998 to become the principal of Riverside Academy, a school Dr. Holloway described as "in crisis" at the time and in jeopardy of being closed by the district's school board. Indeed, when Dr. Holloway first came to the school, the appearance of Riverside Academy revealed the climate issues that were occurring. And, she questioned the teachers about the situation:

> When I first came all of the bulletin boards that you see around, there was nothing up. It was just blank, lots of graffiti stuff. It was bad, holes in the walls in some of the areas and stuff. And, I asked the teachers why there were no displays on the bulletin boards. And, they said, "Well, they'll just tear them down. The kids don't care." And so, I said, "Well, let's see if they'll tear themselves down." So, that's when we started student-of-the-month in all of the departments and recognized them, took their picture, made a big deal out of it. And miraculously, they didn't tear those bulletin boards down. So, I thought, "We're onto something now."

Thus, in her first months at Riverside Academy, Dr. Holloway was notably changing the climate of the school and finding ways to transform teachers' perceptions about what could and could not be accomplished with the student population at Riverside Academy.

With Dr. Holloway's focus on climate issues to assist in eventually increasing student academic performance, her first and second year at the school, Riverside Academy attained an average[7] rating on yearly state-mandated assessments. However, in the 2000-2001 academic year, Riverside Academy attained an above average rating on

state-mandated assessments, and the following academic year the school attained an

exceptional rating, the highest rating on the state-mandated assessments. Therefore, in

her first four years at Riverside Academy, Dr. Holloway had managed to change the

climate of the school and reach the pinnacle of state-mandated assessment success.

However, in the 2002-2003 academic year, the state increased the rigor of the state-

mandated assessments. That year none of the schools in the state were rated due to the

new level of rigor. In the 2003-2004 academic year, the second year of the new, tougher

tests, Riverside Academy dropped to an average rating. In fact, for the subsequent five

consecutive years, Riverside Academy maintained only an average rating on the state-

mandated assessment.

In the 2008-2009 academic year, Dr. Holloway was determined to change

Riverside Academy's acceptable rating to above average. After closely examining the

data from the state-mandated assessments, she decided that reform was needed mostly in

the areas of math and science instruction if the school was going to improve their overall

rating. In fact, after looking at the data with the entire faculty, Dr. Holloway believed the

Riverside Academy faculty understood the situation:

> But everybody knew because we do a lot of analysis of data and looking at
>
> performance. So, everybody knew that the areas we were kind of in crisis mode,
>
> that we really needed to focus on math and science and kind of raise the level of
>
> performance.

Thus, when Dr. Holloway decided to focus the reform strategy of professional learning

communities in only math and science, she believed that through data her decision was

justified and that the entire school was agreed on the need for increasing math and science academic success school-wide. This context, then, created the conditions that led to the principal's efforts to improve student learning in math and science.

Leadership Style of the Principal

The second theme that emerged was the leadership style of the principal. Dr. Holloway, an African American female, started her career as a science teacher and later pursued school leadership. Yet, Dr. Holloway saw her leadership style as different from other principals due to the focus of her leadership philosophy and the ways she negotiated the sacrifices of that difference in her daily schedule:

> I've always believed that the principal was the instructional leader first. So, a lot of things that drag on the principal's time don't have a lot to do with instruction. They have a lot to do with management, but not instruction. So, you really have to kind of clear the way. I work longer hours than a lot of principals who don't do that. So, I'm here later. I'll admit that. You cannot get it done all in an eight to five day. Or at least, I haven't been able to do that. So, I work longer hours.

Clearly, Dr. Holloway believed that instruction needed to be her main focus, that this focus needed to over-ride managerial issues, that this focus required longer work hours, and, finally, that most principals were unwilling to do this. In addition, black female urban leadership has been documented in the literature to be of a similar style as Dr. Hollway's (see, for example, Dillard, 1995, 2000).

Additionally, this difference in leadership style was also apparent to her teachers. When Mr. Mercer, one of the math teachers new to Riverside Academy, was asked to

compare his experience in general at a previous district and school with his experience at Riverside Academy, what he primarily focused on was the difference in leadership, "At Lakewood, our principal was much more hands off, and it was much more relaxed. And so, the only big difference is the principal. She's a lot more hands on."

However, it was not simply the focus on instruction from a leadership standpoint that Dr. Holloway believed would increase academic achievement at Riverside Academy, but through actually having a presence in the instructional processes of teachers and engaging in conversations about their assessment of student learning. Thus, Dr. Holloway decided that she, Ms. Sassano, and the instructional specialist, Ms. Anderson, would attend on an almost daily basis the math professional learning community meetings. In fact, all of the teachers in the math professional learning community confirmed that a school leader was in their meetings eighty-five to ninety percent of the time to facilitate the community by asking critical questions and assisting teachers in improving their practice. Consequently, Dr. Holloway saw focusing on the instructional practices of teachers for student success as her main role in the math professional learning community. For example, she thought getting the teachers to be reflective about their teaching practices in the math professional learning community was the most effective way to push those practices to more rigorous levels of instruction that would ensure all students were learning. When the teachers would discuss their lessons and their mastery results, Dr. Holloway took the opportunity to push the teachers toward reflectivity:

It gives me the opportunity to say, "Well, have you thought about…? Are you using the vocabulary? How are you teaching that with the students?" So, we had some discussion about that. In turn, it brought ideas from other people, "Well, here's the way I did that." Or, "I'm doing it this way." And so, they were hearing as we go around the table other people's ideas. But generally, I was doing the probing on those kinds of things we were talking about, especially if it was areas of focus.

Thus, Dr. Holloway used the math professional learning community meetings to focus the teachers on becoming reflective about their teaching practices and getting them to question their own practices. Further, much of this focus on teacher reflectivity emerged from Dr. Holloway checking student scores on weekly benchmark assessments, reading weekly lesson plans, and monitoring the instruction contained in the lesson plans for student success through in-class observations and self-reports during the math professional learning community time. And while Dr. Holloway was intensely engaged in the math professional learning community for the first four months of its implementation, she gradually released (Fisher & Frey, 2008) leadership responsibility for the math professional learning community to others. Consequently, by the last three months of the academic year, Ms. Cross, the math department chair, was leading the math professional learning community meetings most days even though school leaders still regularly attended.

Professional Learning Communities as the Principal's Key Reform Strategy

The third theme of the case was professional learning communities as the

principal's key reform strategy. While professional learning communities were initiated

as a district-wide reform strategy to foster the implementation of project-based learning

to increase math and science achievement on the state-mandated assessment, the

implementation of project-based learning was considered by Dr. Holloway as the fourth

goal of professional learning communities (PLCs):

> Researcher: What would you say were the three or four main goals you had for
>
> > PLCs?
>
> Dr. Holloway: The first goal I wanted to see that it improved student
>
> > performance that we wanted to see in each one of those areas that we
> >
> > were working. Second, [I wanted the teachers to] begin to develop and
> >
> > enhance their instructional skills. For math, we worked a lot on improving
> >
> > classroom management. And then, I think that fourth one would be the
> >
> > relevance piece through the project-based learning.

While the district had implemented professional learning communities to assist in the

use of project-based learning, Dr. Holloway thought that focusing on multiple ways to

increase student performance was first and foremost and that student performance would

increase through teachers enhancing their instructional capacity and ability to effectively

handle classroom management. Once those pieces were in place, Dr. Holloway

perceived project-based learning as bringing the relevance aspect of learning to the

professional learning communities and the teachers' practice. And while her main focus

for the professional learning communities was not on project-based learning, she did closely follow the research concerning professional learning communities presented during the university center professional development, specifically the characteristics of professional learning communities espoused by Kruse et al. (1995) and Louis et al. (1996), that is, shared norms and values, focus on student learning, reflective dialogue, deprivatization of practice, and collaboration.

At the onset of creating the math professional learning community, the teachers collaboratively created their shared norms and values. Additionally, the teachers typically spent over seventy-five percent of the math professional learning community meeting times deprivatizing their practice through reflective dialogue focused on student learning (Kruse et al., 1995; Louis et al., 1996). In other words, each teacher individually discussed what had happened in their classrooms for the day, since the math professional learning community was eighth period, the last period of the day, and what percentage of the students mastered the material. Once what occurred in the classrooms was discussed, collaboration (Kruse et al., 1995; Louis et al., 1996) among the school leaders and the teachers ensued about what the teacher could do for the students who had not mastered the material for the day in order for the students to have another opportunity to master the material.

When asked about the constant daily reflection, Ms. Sassano, Riverside Academy's associate principal, explained how that reflection was part of the school leadership's understanding of what needed to be discussed in order to increase teacher understanding of student learning. Specifically, the school leadership wanted the

teachers to understand specifically which students were learning the taught material and which students were not learning the taught material. Subsequently, the school leadership wanted the math teachers to consider the ways in which they were going to re-teach the material for those who had not learned it:

What we have always felt was, "The way that the math will get better is the kids actually have to master the math. If they don't master the math, they're not going to do better. Period." So, you can't do something forward thinking if you don't understand what you did, and it didn't work. "What are we going to do to make this work? If this kid did not get it, if this group of kids did not get it, how are you going to change tomorrow to be able to get them to get it?"

Thus, Ms. Sassano validated the persistent reflective dialogue focus on student learning that occurred in the math professional learning community.

Specifically, the way the reflective dialogue occurred in the math professional learning community was through three questions, 1) Who's learning?, 2) Who's not?, and 3) What are we doing about it? In fact, each day all the teachers in the math professional learning community would essentially deprivatize their teaching practice (Kruse, et al., 1995; Louis et al., 1996) through publicly answering these three questions about student learning. These daily questions would often lead to the teachers collaborating on how to re-teach the students who were struggling with specific concepts. Through this daily process, all the teachers were able to pool from the collective knowledge of their colleagues to answer the third question, What are we doing about it?, and put that answer into practice the following day. Therefore, Dr. Holloway

operationalized the research concerning professional learning communities (Kruse et al., 1995; Louis et al., 1996) into a very concrete process that closely followed that research.

Nature of the Principal's Professional Learning Communities Process

The fourth theme of this case study is the nature of the principal's professional learning community process, which is broken down into six areas—focus, structure/pressure, support, increased individual accountability, increased individual public accountability, increased group accountability, and increased collaboration.

Focus. Dr. Holloway presented a clear focus for the math professional learning community during their meeting times. That focus was increased achievement on the state-mandated assessment in math. For example, Mr. Rucoba discussed how he clearly knew that was the number one focus:

> The number one thing is, "Did your kids get it?" You know, "Did they understand the lesson today? What percent understood and what percent didn't?" And if they didn't understand it, "How are you going to go back and re-teach it to them?" Or, "What are you going to do to make them understand it?" That's what [Dr. Holloway's] wanting most of the time when we go in [to the math professional learning community meeting]. [Dr. Holloway and Ms. Sassano] want to know, "What are the results? Where do the kids stand?" That's the number one thing is, "Are the kids getting it? How do we look for [the state mandated assessment]? How are we going to do this year?" That's the number one focus.

In fact, every single person in the math professional learning community communicated success on the state-mandated assessment as the number one goal for the math professional learning community as well as the school. Clearly, Dr. Holloway made that focus unwaveringly clear.

      Structure/pressure. To assist in keeping the focus, very significant structures were put in place not only in the professional learning community with the three questions and the daily routine of public question and answer, but a lesson cycle was put in place for the math classroom—an anticipatory set, a homework demonstration, a state-mandated assessment "spotlight," checks for understanding, direct teaching of objectives, guided practice, independent practice, and closure. The lesson cycle came from Dr. Holloway, Ms. Sassano, and Ms. Anderson conducting observations in the math teachers' classrooms early in the year and finding from those observations that class time was not being efficiently or effectively used. Thus, Dr. Holloway implemented a set structure for how the class time should proceed. She explained the reasoning behind this implementation:

> But basically, we're telling them, "Okay. We want to see that structure in all the classes because what we're seeing is a lot of lost time." You know, I call it "off task time" when kids are coming in. And over time, you lose a whole lot of class time when stuff like that is going on.

As a result, a structured lesson cycle was instituted.

      Additionally, Dr. Holloway thought the "off-task" behavior occurring in the classrooms resulted in increased classroom management issues of which many of the

teachers struggled. She believed that if students were engaged in instruction, they would be less likely to be engaged in disruptive behavior. So, Dr. Holloway saw the lesson cycle as improving instruction while also decreasing classroom management issues. While some of the teachers found the strict confines of the classroom structure problematic to teaching all that was encompassed in the district curriculum, Dr. Holloway kept the focus on the state-mandated assessment and communicated that the curriculum needed to be adjusted to meet the student learning expectations.

Support. What often balanced teachers' perceptions of the time spent in the math professional learning community within the confines of the structures and through Dr. Holloway's detailed and directive approach to instructional leadership was being able to obtain ideas from not only their colleagues, but also school leaders. While teachers did not always agree with their instruction being so highly scrutinized, they appreciated the fact the school leadership offered solutions to the instruction difficulties they were having. Mr. Mercer talked about how this was often helpful for him.

I'm usually looking at Ms. Sassano and Dr. Holloway and Mr. Paz and Ms. Cross. Those are the four that I get a lot of my ideas from. And Ms. Cross and Ms. Sassano and Dr. Holloway, I wouldn't get to communicate with very much if it weren't for [the math professional learning community]. So, I like that because that's been helpful. I've gotten helpful things from them.

There was, then, a definite appreciation on the part of some of the teachers that the leadership was providing direct support to the teachers.

However, the appreciation of having the school leadership in the math professional learning community was not solely based on the ideas and suggestions they brought to the teachers, but also the tangible resources they provided based upon the discussions that occurred on how to improve student learning. The school leadership took the teachers suggestions seriously and purchased the necessary materials to bring the ideas that developed in the math professional learning community to fruition. For example, Mr. Paz saw the school leadership obtainment of resources as supportive:

I think the principals are really supportive. That's the one thing I notice. I want to see, "Is [leadership] going to support me?" And, they do. And, I ask them for anything. I get it. We wanted the new T.I. Nspire calculators. We got them like that. We said we needed calculators for each kid to take home. It happened. I mean, whatever I need, it happens here.

Even though Dr. Holloway knew very little about the T.I. Nspire calculators, once the issue surfaced in the math professional learning community meeting, and the teachers explained how each student needed the school to provide a calculator for them to take home to do homework, Dr. Holloway responded by pooling budget money from different areas to support the teachers' determination of what was needed to increase student achievement. Additionally, as indicated by the teachers in the interviews, Dr. Holloway provided numerous other resources that surfaced as needs during the math professional learning community meeting time.

Increased individual public accountability. The three questions that were asked in every math professional learning community were directed toward each

individual teacher every day. Ms. Sassano believed that this individual public accountability in the math professional learning community was critical:

> I think the accountability's a big piece because you're either going to do it, and you're going to be part of this team. Or, you're not going to be. And, you don't want everybody saying, "Look. This isn't good. Being happy with thirty percent passing is not good. The top kids passed, but the bottom kids didn't. Where are we going from here?"

In fact, Dr. Holloway used the individual public accountability to help transform some teachers thinking about where responsibility lies for the academic success of students. She believed the three questions intentionally asked to each teacher individually had an effect on shifting that responsibility:

> I think we were more intentional about, "What are we doing?" those three questions that we talked about, "Who's learning? Who's not?" And, "What am I doing about it?" really lead you to start thinking especially the, "What am I doing about it?" Number one is responsibility because what that says is the major responsibility for whether or not my kids learn lies with me. Teachers will tell you when they're in a different place in their thinking, "Well, it's the students. They need to be…" But really, teachers inspire students to grab hold to the learning.

From her experiences, Dr. Holloway knew that many teachers tend to put the onus of learning on students. However, according to her, the responsibility of teaching is not the only teacher responsibility. Ensuring student learning is a teacher responsibility as well.

And through publicly asking in the math professional learning community the three questions to each math teacher on a daily basis, the responsibility for student learning was centered as the most significant indicator of teacher effectiveness.

Increased group accountability. While individual accountability for student learning increased in the math professional learning community, group accountability to colleagues increased as well. Most of the math professional learning community members felt compelled to assist their colleagues when they were being held individually accountable through the three daily questions. Dr. Holloway explained how this occurred:

> "We tried this. And, sixty percent of my kids got it, but the forty percent didn't."
> And, "How could I do this?" And then, there was the play from the other
> members of the math department on, "Well, you might be able to try this." "I
> tried this. And, this was really successful." Or, "I found this great website that
> has some of that in it. So, you could pull that up and use that." So, it was a time
> for sharing that we typically didn't have much of before.

Thus, the daily three-question process caused the math teachers to ask their colleagues for help, and, at the same time, eventuated in their colleagues feeling responsible for assisting them in finding solutions to their student learning struggles. As a result, there was a major increase in feelings of group accountability among the teachers.

Increased collaboration. The math professional learning community definitely increased its collaboration. Through meeting collectively on a daily basis, the math professional learning community had an opportunity to collaborate on specific problems,

especially problems with concepts that the math professional learning community had difficulty in finding a way to effectively communicate to students. For example, Ms. Johnson explained one such instance where collaboration helped solve a problem.

> We came up with the little sign that's back there, "Solving for Equations on Both Sides." We came together, and we decided what's important step-by-step in order for those kids to understand how to solve equations. And so, all the teachers had their little say in how it was worded. Some words, they took out. Some words, they left.

When students in many of the teachers' classes could not seem to solve equations on both sides of an equal sign, the teachers exhibited collective knowledge creation (Louis, 1994) by generating together a poster that unified the step-by-step way in which they taught students how to process math problems with equations on both sides of the equal sign.

Additionally, collaborating on solutions to their classroom struggles helped teachers get to know other teachers' strengths. And knowing other teachers' strengths facilitated teachers knowing who might be helpful in solving particular classroom struggles. The teachers also collaborated every day on the set of problems that were going to be used the following day for the state-mandated assessment spotlight. Thus together, they were able to divide and complete some of the work of planning, even though the focus of the math professional learning community time was mainly spent on reflective dialogue concerning student achievement.

Improved Teaching and Learning

The fifth and final theme of the case study was improved teaching and learning. Much of the teaching improved due to the strategies adopted within the math professional learning community. For instance, one teacher, Ms. Johnson, used several ideas that Ms. Cross, another teacher, offered her in math professional learning community time:

> Ms. Johnson: And Ms. Cross, she has previous experience with teaching ninth
> graders, and she came up with this method where if you wanted to solve
> for the x-intercept, you could cover, using your hand, up the y. And
> whatever else was left, you could just solve the equation. And, you know,
> that helped me because I've never seen it done like that.
>
> Researcher: Did some of the kids really grasp onto that?
>
> Ms. Johnson: Yes, they did.

However for teachers like Mr. Wright who had not been teaching as long as Ms. Johnson or Ms. Cross, almost all of the math professional learning community ideas were implemented rather quickly.

> Researcher: How does meeting in there change your practice?
>
> Mr. Wright: Well, I almost immediately implement any kind of suggestion they
> bring up. I will try almost, like the next day or the day after to see if it
> works. "How do I adapt this?" You know?

For Riverside Academy, then, teacher learning equated to improved teaching practiced and increased student learning. The improved teaching practice came from teacher

learning about ensuring student learning in the math professional learning community. Specifically in urban schools where the level of teachers' content and pedagogical knowledge are often low (Lankford et al., 2002; Levin & Quinn, 2003), these professional learning communities, like this one at Riverside, can serve as a venue for obtaining ideas on how to improve practice.

In addition to teachers mentioning community discussions leading to changed teaching practices, through multiple observations of the math professional learning communities' classrooms the day after observing the math professional learning community meeting, the researcher was able to track those changes in practice more concretely. In fact, in one math professional learning community, Ms. Cross went to the white board and demonstrated a mini-lesson on exponents. The next day, Mr. Mercer was explaining exponents for his state-mandated assessment spotlight in his classroom. He moved the students through an understanding of exponents in a similar fashion to the way that Ms. Cross had explained it to the entire math professional learning community the prior day. Consequently, repeatedly in classroom observations, teachers were seen incorporating technology, interacting with students, and teaching lessons in ways that had been discussed in the math professional learning community meetings. Thus, direct affects on the math teachers' practices, drawn from dialogues in the math professional learning community, were observed by the researcher in math teachers' classrooms.

Additionally, Riverside Academy did attain their goal of reaching an above average school-wide rating at the end of the 2008-2009 academic year for the school's increased math achievement on the state-mandated assessment. In fact, Riverside

Academy raised their math achievement in all grades to 73% for the 2008-2009

academic year when it had been 58% in the prior 2007-2008 academic year. According

to state agency reports concerning the state-mandated assessment results, campus groups

across the state with similar demographics and "economically disadvantaged" student

populations scored 63% on their math achievement in all grades in the 2008-2009

academic year. Thus, Riverside Academy's success was ten percentage points higher

than schools similarly situated. And, as discussed above, the principal clearly indicated

that this was largely due to the collaborative work of the math professional learning

community.

Discussion

Success in math in an urban high school serving students of color, specifically

African American and Latino/a students from low-income homes, is one of the most

important characteristics of this case study. This kind of success is tough and rare. Thus,

documenting cases where such successful reform occurs is highly important.

Accordingly, this research provides a highly needed "existence proof" (Shulman, 1983)

that successful reform is truly possible in the context of urban high schools.

Second, the way the principal of Riverside Academy used her leadership role as

an instructional leader to implement the math professional learning community and drive

the student math achievement is highly significant. While some of the professional

learning community literature does point to the need for the principal to play a

supportive role (Bryk et al., 1999; Hord & Sommers, 2008; Louis, Kruse, & Associates,

1995; McLaughlin & Talbert, 2001; Scribner et al., 1999) in the creation and

implementation of professional learning communities, that support is primarily focused

on organizational factors influencing professional learning communities (Louis, Kruse,

& Associates, 1995) rather than focusing on the actual processes of those professional

learning communities that "goes beyond regular contact and that encourages teachers to

be involved, to innovate, and to take risks" (Bryk et al., 1999, p. 768). Therefore, mainly

theoretical rather than empirically-based understandings of the role of the principal in

professional learning communities have been espoused in the scholarly literature. In

contrast, while the principal in this case did provide structural organizational factors

(Louis, Kruse, & Associates, 1995) through providing the daily forty-five minute time

period to meet, having all of the math teachers' rooms in very close proximity to each

other, and creating communication structures through the three questions that lead to

interdependency in teaching roles, the main point of this case for the role of the school

leader is that Dr. Holloway frequently participated directly in the math professional

learning community to drive changes in teaching behaviors that could lead to improved

student learning in the subject area, math, the subject area her school struggled with the

most. In response, while it might be argued that most high school principals would not

have the time to work in this way, in Dr. Holloway's defense, she has "modeled" one

example of what it may take to produce success in an urban high school using

professional learning communities as a key reform strategy.

  The third most important characteristic of this case is the change in teacher

practices. While previous literature pointed to the need to implement specific

innovations through professional learning communities like authentic pedagogy (Louis

& Marks, 1998), literacy instructional practices (Englert & Tarrant, 1995), and reading strategies (Strahan, 2003) for increased student achievement, these studies (see Vescio, Ross, & Adams, 2008, for a review) provided "teacher's self-reported data that indicated change in practice, [but] the teacher provided no specific information about the nature of the changes in practice or thinking" (p. 84). Therefore, this case study is the first to research direct connections between discussions in a professional learning community and changes in classroom teaching practices, connections that were found through prolonged in-depth observation of a professional learning community and teachers' classrooms and not teacher self-reporting alone.

Consequently, this case has provided some key additions to the scholarly literature on urban high school reform and the use of professional learning communities as a strategy within such reform. It has provided an "existence proof" (Shulman, 1983) for success in an urban high school. It has also provided a different leadership model for successful use of a professional learning community to drive improvements in student learning. It has also provided the first study to document specific discussions in professional learning community that led to subsequent detailed changes in teachers' classroom practices, not just through what teachers said or perceived, but through the researcher observing both community discussions and, subsequently, teachers' classrooms.

Implications and Conclusion

Since professional learning communities have become ubiquitous (Hargreaves, 2008) due to the fact that so many schools and districts have started to implement

multiple versions of professional learning communities in order to increase student achievement, this case study provides an example of how that might occur in schools, particularly in urban schools that have struggled with math achievement. Specifically, this case addresses the significance of school leadership in influencing the context, structures, and processes of professional learning communities. While professional learning communities often go awry (McLaughlin & Talbert, 2001), this case suggests that leadership that combines a constant focus on a strong commitment to student learning with structure and support within the context of professional learning communities may change teachers' pedagogical practices in order to address the learning needs of all students.

Additionally, this case indicates a need for leadership to be involved in professional learning communities. While professional learning communities have been espoused for their strong teacher autonomy (Louis, Kruse, & Associates, 1995), in some contexts, autonomy may be a detriment to teachers creating and maintaining critical characteristics of professional learning communities (Kruse et al., 1995; Louis et al., 1996). Specifically in instances where teachers are not being successful, situations may arise where, without the inclusion of outside assistance, collaboration simply cannot occur due to the lack of sufficient pedagogical and content knowledge within the community. Thus, this case points to the way in which the inclusion of leadership within a professional learning community can increase capacity to assist in creating shared norms and values, focusing on student learning, participating in reflective dialogue,

learning to deprivatize practice, and engaging in collaboration (Kruse et al., 1995; Louis et al., 1996).

Furthermore, there has recently been an increased focus on teachers being the direct link to student achievement (e.g., Fishman, Marx, Best, & Tal, 2003). However, principals are the direct link to teacher learning. This case points to the need for school leadership to ensure teacher learning about student learning. While many school leaders may believe that if they provide the organizational structures that allow for teacher learning to occur, teacher learning will indeed follow. However, given the example of this case, school leaders may need to take responsibility for teacher learning and be engaged in the instructional processes and practices of teachers in order to ensure that teacher learning about student learning is indeed occurring. Putting organizational structures in place, such as professional learning communities, may not be sufficient to ensure that teachers are learning about student learning in order to increase student achievement. In many schools, school leaders may need to be engaged in the processes and practices of teacher learning as that was what happened with Riverside Academy, and their work did lead to considerable success.

CHAPTER IV

CONCLUSION

Combined Understanding

Together, these two articles illustrate how difficult urban high school reform efforts in math and science teaching really are. However, they also demonstrate the significance of school leadership in implementing and maintaining these reform efforts. At one point in the data collection with Ms. Dickerson at Evergreen High School, she mentioned:

> And so, maybe [the district or school] could, you know, set some of that money aside for the administrator…since they're going have to put up, you know, extra work so to speak for being there at their school's [professional] learning community. And maybe that would be the, you know, the little extra push that they need to really, you know, try and get actively involved and…um…you know, and not as a way to try to, you know, use it maybe against the teacher. But, just to, you know, really have a, "Well, I'm getting paid for this." So, really at least try to have an open mind as to what's going on and, you know, and seeing the positive aspects of this.

Even though Ms. Dickerson was considered as the lead teacher in the IPC professional learning community, she truly wanted more involvement from school leadership. And because that leadership had been absent for the majority of the three years the Freshmen Center had been in place, Ms. Dickerson thought that it was due to the absence of

additional monies that would facilitate the school leadership being involved in the professional learning communities. However, the absence of school leadership was due to the complexity of the context of Evergreen High School and not because instructionally leading the professionally learning communities was outside of the school leadership responsibilities at Evergreen High School.

Similarly, Ms. Gant, a science teacher involved in the science professional learning communities at Riverside Academy, which was being implemented at the same time the math professional learning community at Riverside Academy was being implemented, longed for the kind of leadership that was occurring in the math professional learning community to also be present in the science professional learning community at Riverside Academy:

I wish, I'm a really hard worker. And sometimes, I wish that, not that I want to do all of [what the math professional learning community was doing], but I want to know what I'm supposed to be doing to get the kids ready for the [state-mandated] test. And, I feel like sometimes there's so much push down on other departments, like the math department, that the science department's like left out of the loop. You know, whenever we're at faculty meetings or anything, you know, we have two, we had two principals and one…instructional specialist always going to the math meetings. But then, we only ever had like [the assistant principal] coming to ours. And so, it was like, uh, for a long time, I was saying, you know, "I want somebody else in here," because I want to know how the math people are running it because we weren't getting anything done. You know,

I was walking out of those meetings thinking, "Oh, my gosh! I just wasted forty

minutes of my day, fifty minutes of my day."

Even though an assistant principal was assigned to lead the science professional learning

community at Riverside Academy, Ms. Gant knew that the school leadership was paying

more attention to the math professional learning community. And although she did not

want to do all that the math professional learning community had to do, she envied the

concentrated school leadership focus that was apparent to her in the math professional

learning community.

Thus, surprisingly, though teacher autonomy and control has been suggested as

an important factor in implementing professional learning communities (Louis, Kruse, &

Associates, 1995), the research in this dissertation, including the above quotes, show

how significant school leadership involvement in professional learning communities is.

School leadership involvement in professional learning communities is significant not

only because school leadership assists professional learning communities in becoming

successful in increasing student achievement, like in the case of the math professional

learning community at Riverside Academy, but also because that school leadership

involvement is perceived as needed in professional learning communities as shown

through Ms. Dickerson's and Ms.Gant's quotes above. Thus, a school reform

implementation like professional learning communities requires a concentrated effort by

school leadership to be engaged in instructionally leading these communities.

Additionally, these combined cases show how noteworthy context is in

implementing reform efforts, especially in urban high schools. Most importantly, the

contexts in the two schools were very dissimilar. At Evergreen High School, the school leadership and teacher personnel had significantly failed to meet Annual Yearly Progress (AYP) for two years in a row and were facing the possibility of being reconstituted after the 2006-2007 academic year if AYP was not met again. Thus, most of the personnel at Evergreen High School knew that school leaders as well as teachers would be terminated if the school was not more successful on the state-mandated yearly assessment. However, at Riverside Academy, the principal was frustrated by a state rating of adequate instead of exceptional for the school's student performance. From her experience at the school, she knew that performance could be raised and set out to ensure that it was. Therefore, these two contexts pose various levels of urgency for reform. At Evergreen High School, failing to reform had immediate dire consequences, but if Riverside Academy had maintained adequate performance for a sixth year, no serious negative sanction would have been placed on the school.

Finally, these two cases show divergent ways of implementing the same reform, professional learning communities. Both the teachers at Evergreen High School and the teachers at Riverside Academy had two periods a day within the master school schedule without students. At both high schools, teachers were able to use one of those periods for personal planning and the second period for professional learning community meeting time. However, at Evergreen High School, the teachers were in two professional learning communities, an interdisciplinary one and a subject-specific one, that met two designated days a week during different periods. Even though some of the intent of the interdisciplinary professional learning communities was to provide a venue for

interdisciplinary planning and projects, these communities were mainly used in the Freshmen Center at Evergreen High School to discuss students, specifically attendance, academic progress (i.e. passing or failing), and behavior. In addition to the interdisciplinary professional learning communities, the teachers spent their time in subject-specific professional learning communities that mainly engaged in cooperative planning for upcoming lessons. Conversely, the implementation of the professional learning communities at Riverside Academy was very different. At Riverside Academy, the teachers met five days a week in a subject-specific professional learning community during the same period every day. Additionally, unlike the teachers at Evergreen High School, the teachers at Riverside Academy spent the majority of their subject-specific professional learning community in reflective practice—gauging students' mastery of concepts and considering how to improve instruction to increase students' mastery of concepts. Thus, in these two examples, the focus of the professional learning communities was very dissimilar.

Personal Reflective Practice

In fact, that reflective practice, gauging what has been learned and what is yet to be learned, is critically important for all academics and practitioners alike, not only for the students they teach, but also for their own personal growth and development. Not surprisingly, it was my concern for my own growth and development that brought me to pursue my Ph.D. at Texas A&M University. So, how have I grown and developed? First, and probably foremost, I have learned that the work continues. And even though the exhaustion of growth and development opportunities in Oklahoma seemed to occur eight

years into my career as an educator, through attending Ph.D. school, I have learned that there will always be opportunities to grow and develop. There will always be questions that need answers; there will always be schools to study; and there will always be ways to assist in ensuring that all districts and schools are equitable and excellent, so that every child in both the United States and all other countries have the opportunities that they so richly deserve.

Second, I have learned that research is complicated, especially being the research instrument through qualitative methods. Some of this complexity comes from seriously recognizing my biases. As the daughter of two educators, a K-12 teacher for eleven years, and, most importantly, the aunt of a nephew and niece who are currently attending public schools in Georgia, I have very strong opinions about education—how schools should be led, how teachers should teach, and what opportunities children should have to learn. Accordingly, throughout these two research projects, I had to constantly consider those biases. Repeatedly, I found myself during interviews wanting to make statements instead of ask questions. But, I realized that something very different occurs to my preconceived notions when I simply look (i.e., observe) and listen. And if I remember correctly, the "look and listen" concept was first taught to me in kindergarten. Well, here I am back in school. Even as I complete a terminal degree, I realize that I have permanently enrolled. After all, I *did* come into the Ph.D. program to grow and develop.

Third, I have learned that finishing a research project answers some questions, but in the end, only leads to more questions. Most of these questions come from the research itself. Three years after conducting research at Evergreen High School, I am

reminded of my interview with Ms. Oliver, a first-year teacher, her understanding of professional learning communities, and the ways in which she persuaded the other IPC teachers to begin meeting:

> Me, Ms. Mai, and Ms. Goode didn't start working together until probably second semester, and that was more of me being boisterous. By that time, I was fed up with nobody helping me. We're all teaching the same thing, and it was no communication. So, I'm like, "It doesn't make sense. If we're all teaching the same [curriculum], why don't we work together? Make it easier on us…so, it just made…more sense that [would] take some [of] the pressure off of all of us by working together. So, eventually, they bought into the idea, and we started working together. And after that, it's been smooth.

As a first-year teacher, Ms. Oliver needed considerable assistance. For her, professional learning community collaborative meetings made sense because they provided an opportunity to divide the work of planning, an overwhelming task to Ms. Oliver who was in the midst of getting her alternative certification through Forest ISD's alternative certification program and who was struggling with the foundational aspects of teaching.

Conversely, a year after conducting research at Riverside Academy, I am reminded of my interview with Ms. Cross, the math department chair as well as the teacher in my two research projects with the most years of teaching experience in her discipline at the high school level. When I asked her about how the math professional learning community at Riverside Academy affected her teaching practice, she responded:

[Professional learning communities have] been good as far as I think it's pushed the reflection thing a little bit more to make you think a little bit more about whether something's being successful. I think this has developed more as I've matured in my teacher years. You know, as a first-, second-year teacher, "I taught it. It was successful." You know? You never thought about… "I got through it. I got all the way through my lesson. I had closure. It was a successful lesson," regardless of how the kids actually understood it. Now as a more mature teacher, that's not success. That's just, "Yea! I got through the lesson." The reflection's been good just for that, just to remind (you) that just because you get through the lesson, it wasn't necessarily good. That's been good. That's had me reflecting more.

For Ms. Cross, reflecting on what was successful through formative and summative assessments structured into the math professional learning community meetings had her thinking about the effectiveness of her instruction in a way that was clearly directed toward student learning.

Ms. Oliver and Ms. Cross represent the ends of the spectrum of experience of the sixteen teachers who were a part of these two research projects. However, their quotes provide insight into the very divergent needs of teachers who gather in professional learning communities. Thus, even after completing this research, I question how novices, veterans, and teachers in between all grow and develop in professional learning communities to elevate the level of their own practice to increase student achievement. If professional learning communities are supposed to be venues for professional

development (e.g., Grossman, Wineburg, & Woolworth, 2001), how is the learning differentiated for the array of learning needs represented by the teachers in those communities?

And while I still have that question to answer, another similar question has me perplexed. At Evergreen High School, the majority of the teachers in the two professional learning communities had neither the content nor the pedagogical knowledge to dramatically leverage among themselves the expertise that was needed to significantly change their instruction in the ways needed to increase student achievement. Additionally, Ms. Givens, the Professional Learning Communities Coordinator at Evergreen High School, had only three years of teaching experience herself, and while she was confident in her algebra I knowledge, she had neither the content knowledge of the three other disciplines in the Freshmen Center nor the pedagogical knowledge needed to leverage with the Freshmen Center teachers' content knowledge to lead them in changing their practice for increased student achievement. However, at Riverside Academy, Dr. Holloway leveraged the pedagogical knowledge of Ms. Sassano, Ms. Anderson and herself, who together had a combined total of over fifty years in education, with the content knowledge of the math professional learning community teachers, many of whom had minimal pedagogical knowledge, to collaborate on the most difficult student learning struggles in order to discover possible ways of changing teaching practice for increased student achievement. Consequently, the two schools' differing ways of considering leveraging and generating knowledge through inquiry into teacher practice makes me question how professional learning communities

ensure that expertise is available to have the kind of collaboration necessary for reform. Specifically in urban schools, many filled with low levels of teacher quality, I question how professional learning communities can be effective, especially when leadership is distributed to leaders who are not the head principal, like Dr. Holloway, and may not know how to assess and leverage the knowledge of those within the professional learning communities for the greatest outcomes.

Aside from professional learning communities as a reform process for teachers in schools, I am also interested in professional learning communities at leadership levels as reform efforts. In Forest ISD, a professional learning community existed among the ten high school principals who were having the most difficulty in increasing student achievement. And currently in the state of Washington, an initiative is being implemented where districts with similar student achievement issues become professional learning communities together. Both of these examples represent areas of potential future research. Thus, I am interested in how district and school leaders participate in and implement professional learning communities to increase student achievement, specifically in schools that are struggling to educate students of color from low-income homes.

In addition, I am interested in professional learning communities for students as a leadership-initiated reform strategy. Through another research project of which I am a part in addition to the research presented here, the research team has been conducting a study that is concerned with how high-achieving students of color, specifically African American and Latino/a students, navigate the structural and social aspects of secondary

schooling to become successful. One of the findings from that research has to do with the ways in which schools create protective factors to ensure the success of students of color. This finding has led me to consider how professional learning communities among students, as a leadership-initiated strategy, could possibly be used as a protective factor to ensure the success of students of color. Students have multiple social networks, most of which are used for purely social connections. However, schools have a responsibility to create learning networks for students, specifically students of color who may not have learning networks like their White counterparts. In order to be academically successful, students have to have supports, or protective factors, in place to ensure that they are able to take advantage of educational opportunities. Thus, in my future research, I would like to consider how professional learning communities among students might provide those supports. Therefore, currently, both my future research interests are concerned with the various ways professional learning communities can be implemented as a reform strategy to increase student learning, specifically for students of color from low-income homes.

While these are my interests, as a new scholar, I am still discovering how to go about conducting the research in which I have the most interest. In the next few months, I will become an assistant professor in educational leadership and try to find my place in academe. However, I know that my future teaching, research, and service, like this dissertation, will be concerned with ways to increase adult capacity in schools to make certain that student capacity is realized.

ENDNOTES

[1] "Small learning communities" was the terminology used by the district studied. However, since "professional learning communities" is more commonly used in research, that terminology is used in this paper.

[2] "Evergreen High School" and all school and district names are pseudonyms.

[3] "Ms. Batson" and all the teachers' and other school and district leaders' names are pseudonyms.

[4] "Below average" rating is a pseudonym. The state where Evergreen High School is located has a four-tier accountability rating system. In this paper, those tiers are referred to as below average, average, above average, and exceptional.

[5] "Riverside Academy" and all other school and district names mentioned are pseudonyms.

[6] "Dr. Holloway" as well as all the teachers' and other school leaders' names are pseudonyms.

[7] "Average" rating is a pseudonym. The state where Riverside Academy is located has a four-tier accountability rating system. In this manuscript, those tiers are referred to as below average, average, above average, and exceptional.

REFERENCES

Argyris, C. (1977). Organizational learning and management information systems. *Accounting, Organizations and Society, 2*(2), 113-123.

Argyris, C., & Schön, D. A. (1978). *Organizational learning: A theory of action perspective*. Reading, MA: Addison-Wesley.

Augustine, N. (Chair) (2005). *Rising above the gathering storm: Energizing and employing America for a brighter economic future.* Report by the National Academy of Science, National Academy of Engineering, and Institute of Medicine. Washington, DC: National Academies Press.

Basu, K., & Van, P. H. (1998). The economics of child labor. *The American Economic Review, 88*(3), 412-427.

Berliner, D. C. (1986). In pursuit of the expert pedagogue. *Educational Researcher, 15*(7), 5-13. doi:10.3102/0013189X015007007

Brooks-Gunn, J., Duncan, G. J., & Aber, J. L. (Eds.) (1997). *Poverty: Context and consequences for children* (Vol. 1). New York, NY: Russell Sage Foundation.

Brown, J. S., & Duguid, P. (1991). Organizational learning and communities-of-practice: Toward a unified view of working, learning, and innovation. *Organization Science, 2*(1), 40-57.

Brunson, R. K., & Miller, J. (2006). Young black men and urban policing in the United States. *The British Journal of Criminology, 46*(4), 613-640. doi:10.1093/bjc/azi093

Bryk, A., Camburn, E., & Louis, K. S. (1999). Professional community in Chicago

    elementary schools: Facilitating factors and organizational consequences.

    Educational Administration Quarterly, 35(5), 751-781.

    doi:10.1177/0013161X99355004

Bryk, A. S., & Schneider, B. (2002). *Trust in schools: A core resource for improvement*.

    New York, NY: Russell Sage Foundation.

Buysse, V., Sparkman, K. L., & Wesley, P. W. (2003). Communities of practice:

    Connecting what we know with what we do. *Exceptional Children, 69*(3), 263-

    277.

Cataldi, E. F., Laird, J., & KewalRamani, A. (2009). *High school dropout and*

    completion rates in the United States: 2007. Retrieved May 5, 2010, from

    http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2009064

Cochran-Smith, M., & Lytle, S. L. (1999). Relationships of knowledge and practice:

    Teacher learning in communities. *Review of Research in Education, 24*, 249-305.

    doi:10.3102/0091732X024001249

Cook, S. D. N., & Yanow, D. (1993). Culture and organizational learning. *Journal of*

    Management Inquiry, 2(4), 373-390. doi:10.1177/105649269324010

Cowan, D., Fleming, G. L., Thompson, T. L., & Morrissey, M. (2004). Study

    description: Investigating five PLC schools. In S. M. Hord (Ed.), *Learning*

    together, leading together: Changing schools through professional learning

    communities (pp. 15-19). New York, NY: Teachers College Press.

Cullen, J. B., Jacob, B. A., & Levitt, S. D. (2005). The impact of school choice on

    student outcomes: An analysis of the Chicago Public Schools. *Journal of Public*

    Economics, 89, 729-760. doi:10.1016/j.jpubeco.2004.05.001

Darling-Hammond, L. (1998). Teacher learning that supports student learning.

    Educational Leadership, 55(5), 6-11.

Denzin, N. K., & Lincoln, Y. S. (Eds.) (2003). *Collecting and interpreting qualitative*

    materials (2nd ed.). Thousand Oaks, CA: Sage Publications.

Devine, J. A., & Wright, J. D. (1993). *The greatest of evils: Urban poverty and the*

    American underclass. Hawthorne, NY: Aldine De Gruyter.

Dillard, C. B. (1995). Leading with her life: An African American feminist

    (re)interpretation of leadership for an urban high school principal. *Educational*

    Administration Quarterly, 31(4), 539-563.

Dillard, C. B. (2000). The substance of things hoped for, the evidence of things not seen:

    Examining an endarkened feminist epistemology in educational research and

    leadership. *International Journal of Qualitative Studies in Education, 13*(6), 661-

    681. doi:10.1080/09518390050211565

Englert, C. S., & Tarrant, K. L. (1995). Creating collaborative cultures for educational

    change. *Remedial and Special Education, 16*(6), 325-336, 353.

    doi:10.1177/074193259501600602

Evans, W. P., Fitzgerald, C., Weigel, D., & Chvilicek, S. (1999). Are rural gang

    members similar to their urban peers? *Youth & Society, 30*(3), 267-282.

Ewart, C. K., & Suchday, S. (2002). Discovering how urban poverty and violence affect health: Development and validation of a neighborhood stress index. *Health Psychology, 21*(3), 254-262. doi:10.1037/0278-6133.21.3.254

Farkas, G. (1996). *Human capital or cultural capital?: Ethnicity and poverty groups in an urban school district*. Hawthorne, NY: Aldine De Gruyter.

Fine, M. (1991). *Framing dropouts: Notes on the politics of an urban high school*. Albany, NY: State University of New York Press.

Fink, E., & Resnick, L. B. (2001). Developing principals as instructional leaders. *The Phi Delta Kappan, 82*(8), 598-606.

Fisher, D., & Frey, N. (2008). *Better learning through structured teaching: A framework for the gradual release of responsibility*. Alexandria, VA: Association for Supervision and Curriculum Development.

Fishman, B. J., Marx, R. W., Best, S., & Tal, R. T. (2003). Linking teacher and student learning to improve professional development in systemic reform. *Teaching and Teacher Education, 19*(6), 643-658. doi:10.1016/S0742-051X(03)00059-3

Friedman, T. (2005). *The world is flat*. New York, NY: Farrar, Straus and Giroux.

Gamoran, A., Porter, A. C., Smithson, J., & White, P. A. (1997). Upgrading high school mathematics instruction: Improving learning opportunities for low-achieving, low-income youth. *Educational Evaluation and Policy Analysis, 19*(4), 325-338. doi:10.3102/01623737019004325

Gardner, D. (1983). *A nation at risk: The imperative for educational reform*. Washington, DC: U.S. Government Printing Office.

Garvin, D. A. (1993). Building a learning organization. *Harvard Business Review, 71*(4), 78-91.

Geertz, C. (1973). *The interpretation of cultures: Selected essays.* New York, NY: Basic Books.

Geronimus, A. T. (2000). To mitigate, resist, or undo: Addressing structural influences on the health of urban populations. *American Journal of Public Health, 90*(6), 867-872.

Glaser, B. & Strauss, A. (1967). *The discovery of grounded theory.* Chicago, IL: Aldine.

Grossman, P., Wineburg, S., & Woolworth, S. (2001). Toward a theory of teacher community. *Teachers College Record, 103*(6), 942-1012.

Guskey, T. R. (1989). Attitude and perceptual change in teachers. *International Journal of Educational Research, 13*(4), 439-453. doi:10.1016/0883-0355(89)90039-6

Hargreaves, A. (2008). Foreword. In S. M. Hord and W. A. Sommers, *Leading professional learning communities: Voices from research and practice* (pp. ix-xi). Thousand Oaks, CA: Corwin Press.

Hedberg, B. (1981). How organizations learn and unlearn. In P. C. Nystrom & W. H. Starbuck (Eds.) *Handbook of organizational design* (Vol. 1, pp. 9-11). New York, NY: Oxford University Press.

Hess, F. M. (Ed.) (2005). *Urban school reform: Lessons from San Diego*. Cambridge, MA: Harvard Education Press.

Hill, P. T., Campbell, C., & Harvey, J. W. (2000). *It takes a city: Getting serious about urban school reform*. Washington, DC: Brookings Institution Press.

Hollins, E. R., McIntyre, L. R., DeBose, C., Hollins, K. S., & Towner A. (2004). Promoting a self-sustaining learning community: Investigating an internal model for teacher development. *International Journal of Qualitative Studies in Education, 17*(2), 247-264. doi:10.1080/09518390310001653899

Hord, S. M. (1997). *Professional learning communities: Communities of continuous inquiry and improvement*. Austin, TX: Southwest Educational Development Laboratory. (ERIC Document Reproduction Service No. ED410659)

Hord, S. M., & Sommers, W. A. (2008). *Leading professional learning communities: Voices from research and practice*. Thousand Oaks, CA: Corwin Press.

Huber, G. P. (1991). Organizational learning: The contributing processes and the literatures. *Organization Science, 2*(1), 88-115. doi:10.1287/orsc.2.1.88

Kruse, S. D., Louis, K. S., & Bryk, A. S. (1995). An emerging framework for analyzing school-based professional community. In K. S. Louis, S. D. Kruse, & Associates, *Professionalism and community: Perspectives on reforming urban schools* (pp. 23-44). Thousand Oaks, CA: Corwin Press.

Lankford, H., Loeb, S., & Wyckoff, J. (2002). Teacher sorting and the plight of urban schools: A descriptive analysis. *Educational Evaluation and Policy Analysis, 24*(1), 37-62. doi:10.3102/01623737024001037

Levin, J., & Quinn, M. (2003). *Missed opportunities: How we keep high-quality teachers out of urban classrooms*. Baltimore, MD: Annie E. Casey Foundation. (ERIC Document Reproduction Service No. ED481608)

Levitt, B., & March, J. G. (1988). Organizational learning. *Annual Review of Sociology, 14*, 319-340.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Newbury Park, CA: Sage Publications.

Lipman, P. (2004). *High stakes education: Inequality, globalization, and urban school reform*. New York, NY: Routledge Falmer.

Little, J. W., Gearhart, M., Curry, M., & Kafka, J. (2003). Looking at student work for teacher learning, teacher community, and school reform. *Phi Delta Kappan, 85*(3), 184-192.

Lortie, D. C. (1975). *Schoolteacher: A sociological study*. Chicago, IL: University of Chicago.

Louis, K. S. (1994). Beyond 'managed change': Rethinking how schools improve. *School Effectiveness and School Improvement, 5*(1), 2-24. doi:10.1080/0924345940050102

Louis, K. S., Kruse, S. D., & Associates (1995). *Professionalism and community: Perspectives on reforming urban schools*. Thousand Oaks, CA: Corwin Press.

Louis, K. S., Kruse, S. D., & Marks, H. M. (1996). Schoolwide professional community. In F. M. Newman (Ed.), *Authentic achievement: Restructuring schools for intellectual quality* (pp. 179-203). San Francisco, CA: Jossey-Bass Publishers.

Louis, K. S., & Marks, H. M. (1998). Does professional community affect the

    classroom? Teachers' work and student experiences in restructuring schools.

    American Journal of Education, 106(4), 532-575.

Ludwig, J., Duncan, G. J., & Hirschfield, P. (2001). Urban poverty and juvenile crime:

    Evidence from a randomized housing-mobility experiment. *The Quarterly*

    Journal of Economics, 116(2), 655-679. doi:10.1162/00335530151144122

McLaughlin, M. W., & Talbert, J. E. (1993). *Contexts that matter for teaching and*

    learning: Strategic opportunities for meeting the nation's educational goals.

    Stanford, CA: Center for Research on the Context of Secondary School

    Teaching. (ERIC Document Reproduction Service No. ED357023)

McLaughlin, M. W., & Talbert, J. E. (2001). *Professional communities and the work of*

    high school teaching. Chicago, IL: The University of Chicago Press.

McLaughlin, M. W., & Talbert, J. E. (2006). *Building school-based teacher learning*

    communities: Professional strategies to improve student achievement. New

    York, NY: Teachers College Press.

McLaughlin, M. W., & Talbert, J. E. (2007). Building professional learning communities

    in high schools: Challenges and promising practices. In L. Stoll & K. S. Louis

    (Eds.), *Professional learning communities: Divergence, depth and dilemmas* (pp.

    151-165). Berkshire, UK: Open University Press.

Merriam, S. B. (1998). *Qualitative research and case study applications in education*

    (2nd ed.). San Francisco, CA: Jossey-Bass.

Merriam, S. B. (2009). *Qualitative research: A guide to design and implementation*. San Francisco, CA: Jossey-Bass.

Mitchell, C., & Sackney, L. (2000). *Profound improvement: Building capacity for a learning community*. Lisse, NL: Swets & Zeitlinger.

Mitchell, C., & Sackney, L. (2006). Building schools, building people: The school principal's role in leading a learning community. *Journal of School Leadership, 16*(5), 627-640.

Mulford, B., & Silins, H. (2003). Leadership for organizational learning and improved student outcomes. *Cambridge Journal of Education, 33*(2), 175-195.

National Academy Foundation. (2009). *NAF academies*. Retrieved May 12, 2010, from http://naf.org/naf-academies.

No Child Left Behind Act, Public Law No. 107-110, 115 Stat., (2002).

Ontario Principal's Council (2009). *The principal as professional learning community leader*. Thousand Oaks, CA: Corwin Press.

Orr, J. (1990). Sharing knowledge, celebrating identity: War stories and community memory in a service culture. In D. S. Middleton & D. Edwards (Eds.), *Collective remembering: Memory in society*. Beverly Hills, CA: Sage Publications.

Patton, M. Q. (1990). *Qualitative evaluation and research methods* (2nd ed.). Newbury Park, CA: Sage Publications.

Payne, C. M. (2008). *So much reform, so little change: The persistence of failure in urban schools*. Cambridge, MA: Harvard Education Press.

Rait, E. (1995). Against the current: Organizational learning in schools. In S. B. Bacharach & B. Mundell (Eds.), *Images of schools: Structures and roles in organizational behavior* (pp. 71-107). Thousand Oaks, CA: Sage.

Reyes, P., Scribner, J. D., & Scriber, A. P. (Eds.). (1999). *Lessons from high-performing Hispanic schools: Creating learning communities*. New York, NY: Teachers College Press.

Rosenholtz, S. (1989). Workplace conditions that affect teacher quality and commitment: Implications for teacher induction programs. *The Elementary School Journal, 89*(4), 421-439.

Rumberger, R. W., & Larson, K. A. (1998). Student mobility and the increased risk of high school dropout. *American Journal of Education, 107*(1), 1-35.

Rumberger, R. W., & Thomas, S. L. (2000). The distribution of dropout and turnover rates among urban and suburban high schools. *Sociology of Education, 73*(1), 39-67.

Sampson, R. J., & Wilson, W. J. (2005). Toward a theory of race, crime, and urban inequality. In S. L. Gabbidon & H. T. Greene (Eds.), *Race, crime, and justice: A reader* (pp. 177-189). New York, NY: Routledge.

Schön, D. A. (1983). *The reflective practitioner: How professionals think in action*. New York, NY: Basic Books.

Scribner, J. P., Cockrell, K. S., Cockrell, D. H., & Valentine, J. W. (1999). Creating professional communities in schools through organizational learning: An

evaluation of a school improvement process. *Educational Administration Quarterly, 35*(1), 130-160. doi:10.1177/0013161X99351007

Senge, P. (1990) *The fifth discipline: The art and practice of the learning organization*. New York, NY: Currency Doubleday.

Senge, P., Cambron-McCabe, N. H., Lucas, T., Kleiner, A., Dutton, J., & Smith, B. (2000).*Schools that learn: A fifth discipline fieldbook for educators, parents, and everyone who cares about education*. New York, NY: Doubleday.

Sergiovanni, T. J. (1994). Organizations or communities? Changing the metaphor changes the theory. *Educational Administration Quarterly, 30*(2), 214-226. doi:10.1177/0013161X94030002007

Shulman, L. S. (1983). Autonomy and obligation: The remote control of teaching. In L. S. Shulman and G. Sykes (Eds.), *Handbook of teaching and policy* (pp. 484-504). New York, NY: Longman.

Simmons, J. (2006). *Breaking through: Transforming urban school districts*. New York, NY: Teachers College Press.

Skrla, L., McKenzie, K. B., & Scheurich, J. J. (2009). *Using equity audits to create equitable and excellent schools.* Thousand Oaks, CA: Corwin.

Skrla, L., Scheurich, J. J., & Johnson, J. F., Jr. (2001). Introduction: Toward a consensus on high academic achievement for all children. *Education and Urban Society, 33*(3), 227-234. doi:10.1177/0013124501333001

Skrla, L., Scheurich, J. J., Johnson, J. F., Jr. & Koschoreck, J. W. (2001). Accountability for equity: Can state policy leverage social justice? *International Journal of Leadership in Education, 4*(3), 237-260. doi:10.1080/13603120120176

Snipes, J., Doolittle, F., & Herlihy, C. (2002). *Foundations for success: Case studies of how urban school systems improve student achievement*. Washington, DC: Council of Great City Schools. (ERIC Document Reproduction Service No. ED468981)

Stoll, L., & Louis, K. S. (2007). *Professional learning communities: Divergence, depth and dilemmas*. Berkshire, UK: Open University Press.

Strahan, D. (2003). Promoting a collaborative professional culture in three elementary schools that have beaten the odds. *The Elementary School Journal, 104*(2), 127-146.

Supovitz, J. A. (2002). Developing communities of instructional practice. *Teachers College Record, 104*(8), 1591-1626.

Supovitz, J. A., & Christman, J. B. (2003). *Developing communities of instructional practice: Lessons from Cincinnati and Philadelphia. CPRE Policy Briefs. RB-39.* Pennsylvania, PA: University of Pennsylvania, Consortium for Policy Research in Education. (ERIC Document Reproduction Service No. ED498331)

Swanson, C. B. (2009). *Cities in crisis: Closing the graduation gap. Educational and economic conditions in America's largest cities.* Bethesda, MD: Editorial Projects in Education, Inc. (ERIC Document Reproduction Service No. ED505594)

Talbert, J. E., & McLaughlin, M. W. (2002). Professional communities and the artisan model of teaching. *Teachers and Teaching: Theory and Practice, 8*(3/4), 325-343. doi:10.1080/135406002100000477

Tobin, K., Seiler, G., & Walls, E. (1999). Reproduction of social class in the teaching and learning of science in urban high schools. *Research in Science Education, 29*(2), 171-187. doi:10.1007/BF02461767

Toole, J. S., & Louis, K. S. (2002). The role of professional learning communities in international education. In P. Hallinger & K. A. Leithwood (Eds.) *Second international handbook of educational leadership and administration* (pp. 245-280). Dordrecht, The Netherlands: Kluwer Academic Publishers.

Tschannen-Moran, M., Hoy, A. W., & Hoy, W. K. (1998). Teacher efficacy: Its meaning and measure. *Review of Educational Research, 68*, 202-248. doi:10.3102/00346543068002202

U. S. Census Bureau. (2009). *American Community Survey*. Retrieved May 9, 2010, from http://www.census.gov/

U. S. Department of Education. (2010). *Race to the top fund*. Retrieved May 9, 2010, from http://www2.ed.gov/programs/racetothetop/index.html

Vescio, V., Ross, D., & Adams, A. (2008). A review of research on the impact of professional learning communities on teaching practice and student learning. *Teaching and TeacherEducation, 24*(1), 80-91. doi:10.1016/j.tate.2007.01.004

Visscher, A., & Witziers, B. (2004). Subject departments as professional communities?
British Educational Journal, 30(6), 785-800.
doi:10.1080/0141192042000279503

Wilson, W. J. (1999). When work disappears: New implications for race and urban
poverty in the global economy. *Ethnic and Racial Studies, 22*(3), 479-499.
doi:10.1080/014198799329396

Yin, R. K. (1989). *Case study research: Design and methods* (Rev. ed.). Newbury Park,
CA: Sage Publications.

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